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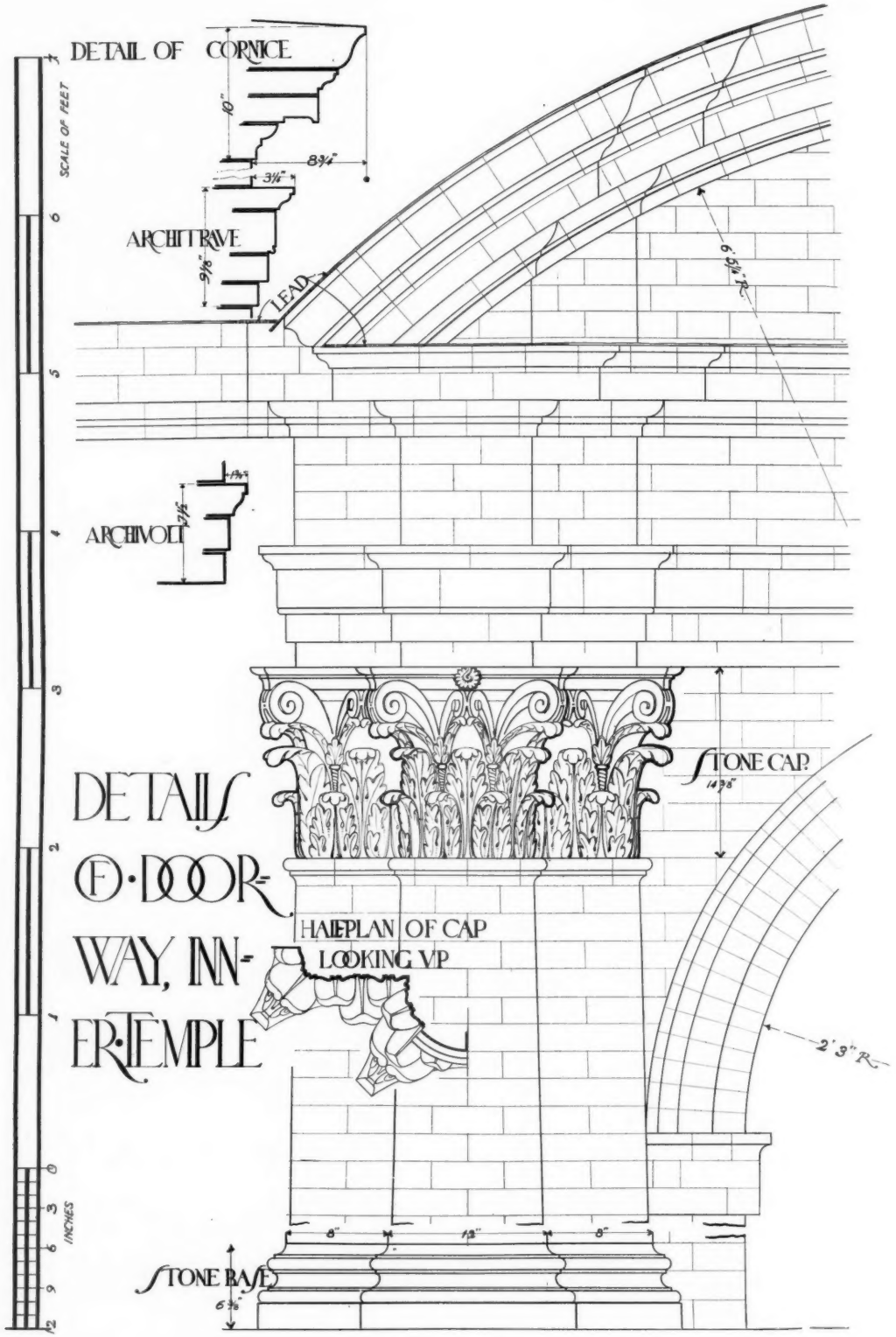
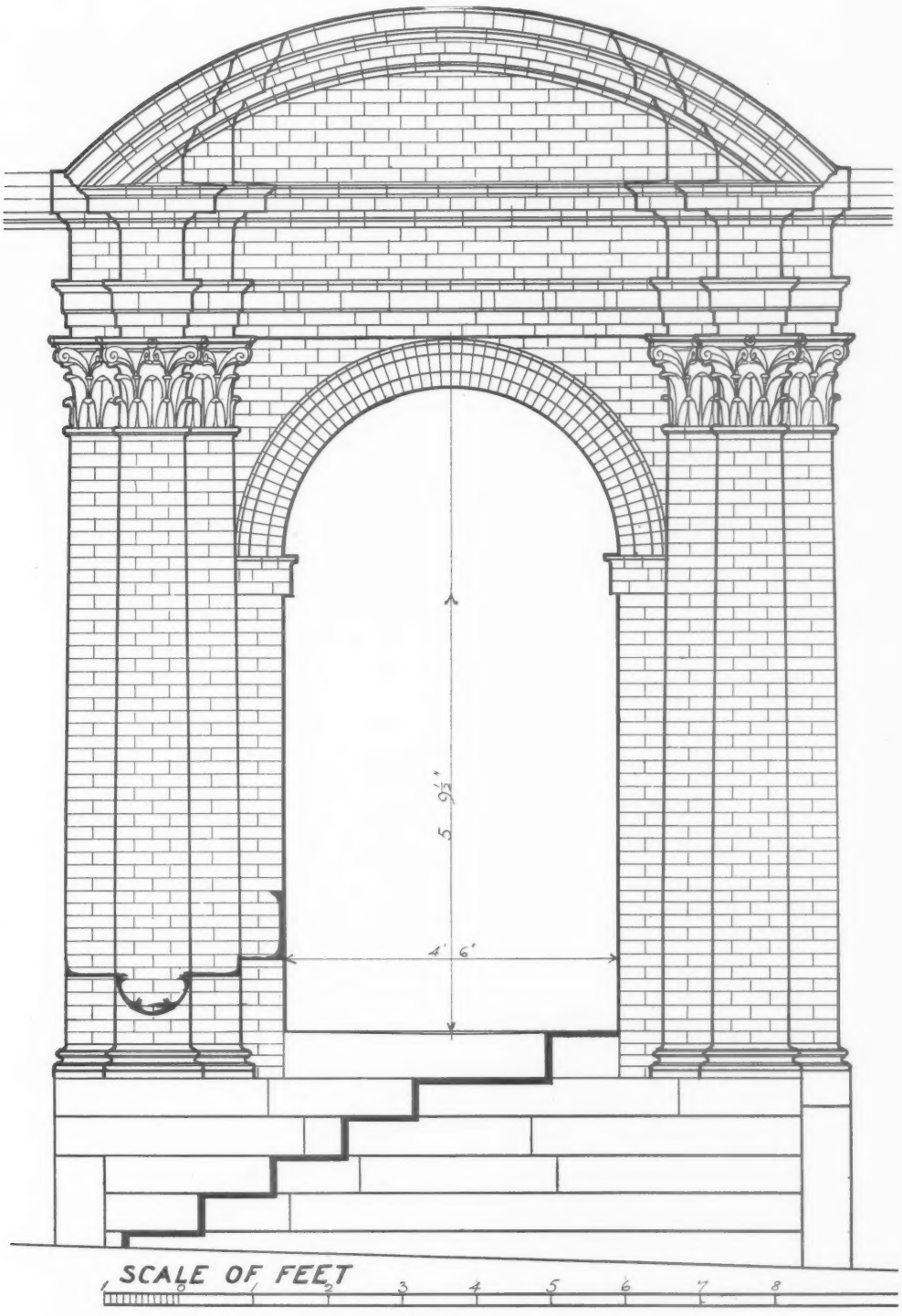


NO. 5, KING'S BENCH WALK, TEMPLE.

BUILT OF GAUGED BRICKWORK. CAPITALS AND BASES OF STONE.

SIR CHRISTOPHER WREN, ARCHITECT. MEASURED AND DRAWN BY ERNST V. WEST.



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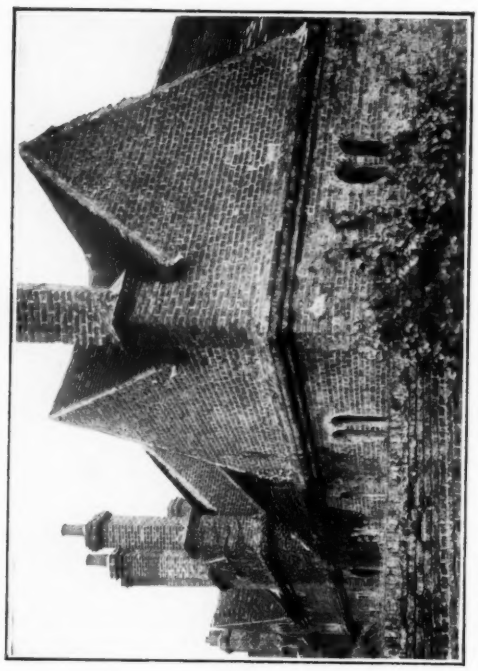
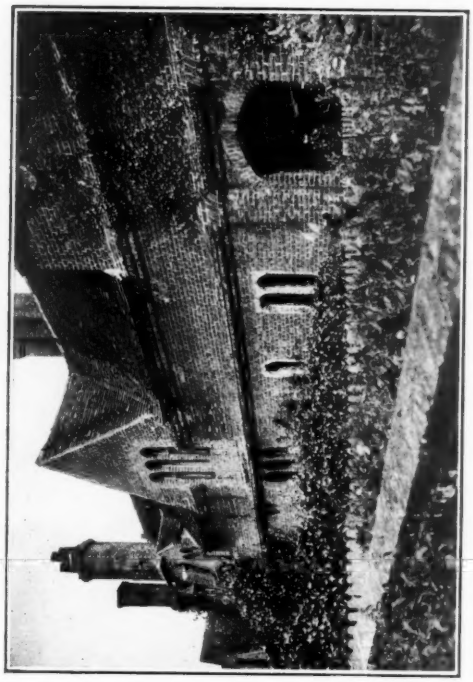
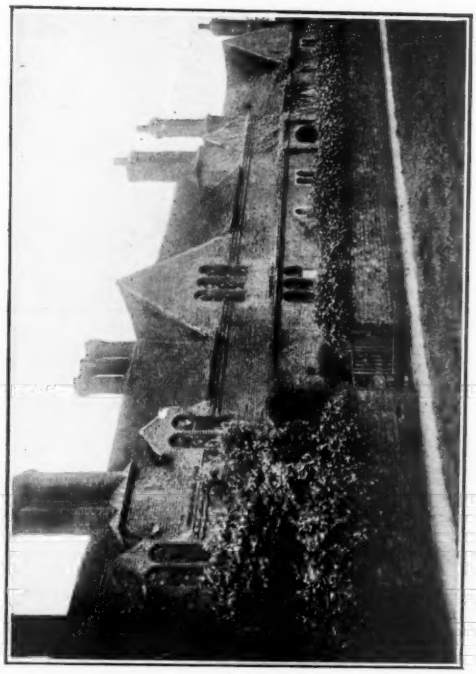


VIEW OF ANGLE OF ALMSHOUSES.



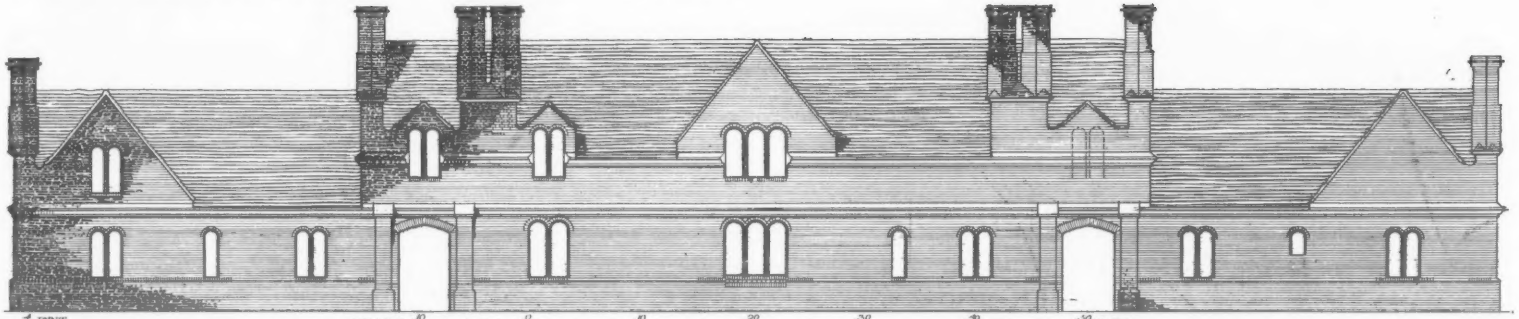
VIEW OF FRONT OF ALMSHOUSES.

VIEW IN COURTYARD B OF ALMSHOUSES.

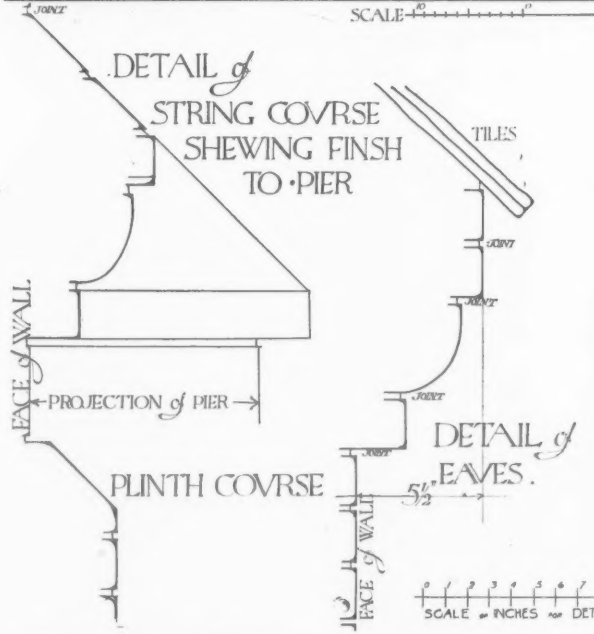


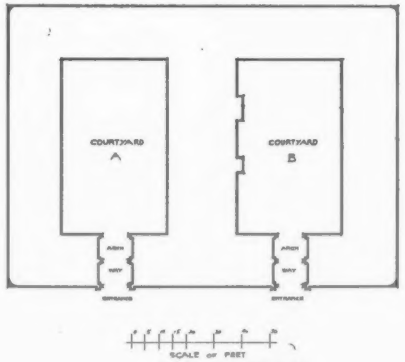
VIEW OF FRONT OF ALMSHOUSES.

ALMSHOVSES. AVDLEY END.

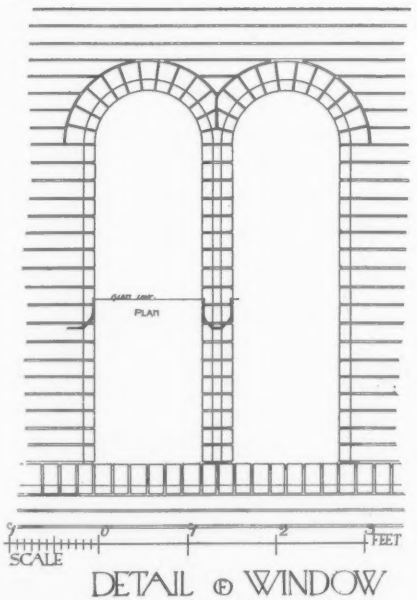


ELEVATION





BLOCK PLAN

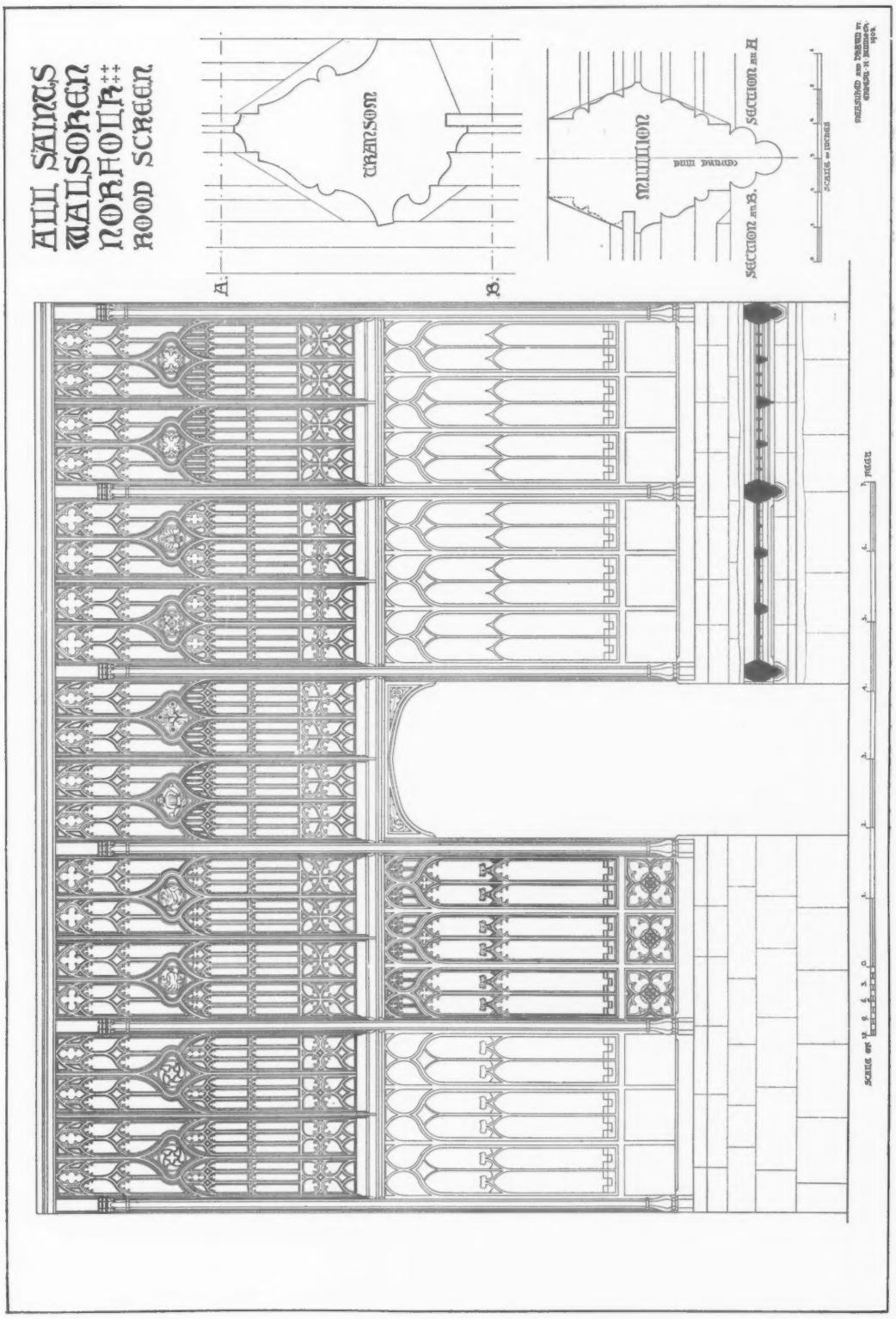


DETAIL of WINDOW

MEASURED AND DRAWN BY H. A. McQUEEN.

Photos: E. H. Bullock.

ALL SAINTS', WALSOKEN, NORFOLK.
INTERIOR, LOOKING EAST. THE SCREEN, LOOKING EAST.



MEASURED AND DRAWN BY E. H. BULLOCK.

GATE AND PIERS FROM THE CLOSE, SALISBURY.

THE Close at Salisbury is singularly rich in Georgian work, and gate piers with wrought-iron gates of this period are numerous.

The ironwork of the two gates published in the Practical Exemplar XXVIII and XXIX is very similar, although the latter is more simple in design, and is without the light and delicate lamp-carrier that is so pleasant a feature of the former. Scroll panels on each side of the gate, a trifling ornamental cresting, and, for the rest, straight bars, make the design, and fine smithwork gives an added charm. Somewhat similar, though on a larger scale, is the gate XXXI. A fine rail extending for some distance on each side is composed of plain bars, with scroll panels at intervals, giving the gate importance. This gate is wider than the others, and the fanciful cresting is not attached to it. The gate illustrated this month is much more severe in treatment; it is also much larger, and opens in two leaves. All this ironwork is extremely simple. There is no elaborate beaten leaf-work, and all the effect is got by nice distribution of straight bars and simple scrollwork. In their finish there is some diversity. Sometimes the scrolls finish in a little ring, sometimes in a solid round, which occasionally is beaten flat like a coin, or, more rarely, is worked out like a ram's horn. The piers to such gates show some variety of design and detail. In Salisbury a common feature is the ornamentation of their faces by sunk panels, and

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GATES AND PIERS FROM THE CLOSE SAILSBVRY.

MEASURED AND DRAWN BY ERNST V. WEST.

for a bed mould to the cornice, a coved moulding. Coigns in brick and stone are another kind of decoration, and the finial may take the form of ball or pineapple or lamp. These various finishings are all exemplified in the gates already published. The steps to the gate with the long wings is an extremely interesting piece of design, also the fine walling of brick and flint with stone copings.

A fire in the Temple gave Wren in 1678 an opportunity to display his hand in a quiet way of design. Several fine doorways in King's Bench Walk are some of the results. Nothing could be simpler than these quiet brick buildings, with no more ornament than that on the entrances. Built of gauged brickwork, a material of which Wren was fond, they show considerable diversity, and are all excellent examples of workmanship and design. It will be readily understood that nice workmanship is required to build cornices and the various members of the entablatures of this material. But it has been done well, and the joints to-day are quite close; No. 5 is perhaps the best. The bases and capitals are of stone; the rest is of gauged brickwork.

The Almshouses at Audley End are a good example of brickwork of quiet design, suitable to its purpose. The houses are built round two courtyards, which are entered by arched gateways. The brickwork of the windows, of the small mullions, and of the arched heads, is excellent, and so is that of the cornices. The gables and chimneys of this small building are excellent examples of brick design.

The Church of All Saints, Walsoken, is one of the most beautiful in the eastern counties. It belongs mainly to the Norman period. The mouldings of the arches between the nave and the aisles are enriched with zig-zag and fret ornaments, and the piers which carry them are alternately round and octagonal. Although the chancel arch is pointed, the same enrichments have been used, so that it is probably of much the same date. The tower is partly Early English and partly of succeeding styles. The screen, of the Perpendicular period, of which we publish drawings, was originally the chancel rood-screen, but it now stands at the east end of the south aisle, forming a chapel. On the north side of the chancel arch the rood stair yet remains. The detail and workmanship are both excellent. Remains of colour are still visible on the screen, a feature for which Norfolk work of this kind is noteworthy. A fine font, of the octagonal sacramental type, is shown in the general view of the church. The seven sacraments are carved on the sides, and the eighth side bears a prayer for the souls of the donors.

One of the entrance doors and the piscina are good examples of Norman work, and the clerestory is a characteristic Perpendicular example.

Notes of the Month.

Town Planning and Evelyn's Plan for the Rebuilding of London—AForerunner of "Workmen's Compensation"—Exhibition of the New English Art Club—Old-Bath Preservation Society —Art in Everyday Life—"An Aesthetic Conversion"—South Kensington Museum.

THESE days are not singular in the way of Town-planning improvement, as a note in *The Courier* of Friday evening, September 2, 1825, indicates. We publish the extract in full, as its purpose was to draw attention to an improvement round St. Paul's which would have given that building a setting not unlike that shown on Evelyn's plan. On that plan the *place* is conceived as a vast amphitheatre, in the midst of which the Cathedral is set. The arrangement of the streets entering the amphitheatre is also not unlike that given in the following description :—

ST. PAUL'S.

(*From a Morning Paper.*)

INTENDED IMPROVEMENT ROUND ST. PAUL'S.

When the grand edifice which ennobles and adorns the British metropolis was first contemplated by its illustrious architect and his munificent patrons, a spacious area was in-

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tended to have surrounded it, but private interests and factious cabals prevented the accomplishment of so necessary an accompaniment to the first Protestant cathedral in the world.

It has been the constant theme of complaint and lamentation, with both natives and foreigners, that the profound skill and exquisite taste of Sir Christopher Wren, "the pride and honour of English Art," should have been so thwarted, that the *capo d'opere* of modern ecclesiastical architecture is crowded into an alley, and his entire design for the new city has not been adopted, which had it fortunately been, its streets would not have been, as they now are, lanes, and its lanes, alleys.

It is not, however, too late to commence the reformation: public spirit and private enterprise are rapidly improving our wealthy metropolis; and most of the houses which were hurried up after the great fire are now in a state of considerable deterioration, and capable of great improvement.

While other plans of magnitude, utility, and consequence are going on, the attention of the whole British nation is called to the improvement of the area and the streets which surround the Cathedral of St. Paul, the just boast of a public-spirited and liberal age.

Among the modern works of architecture which adorn the world, this magnificent edifice holds a distinguished place—second only to the splendid Basilica of St. Peter of Rome, it has obtained a great and deserved celebrity among persons of taste of every country.

A cultivation of the useful and decorative art of architecture has its political as well as its moral use; for public buildings are the greatest and most durable ornaments of a country, and testify the greatness of its institutions. It establishes a nation, draws people and commerce, and makes the people love their country, which passion is the origin of all great actions in commonwealth.

To improve this just pride of the British metropolis, to accomplish as much of its great architect's original intentions as is possible, consistent at the same time with profitable economy, is the aim of the present undertaking.

The proposed improvements consist in removing to a proper distance, and rebuilding to a regular plan, all the houses round the present churchyard, and constructing two or three necessary streets.

The leading feature in the new design is building a semi-circus at the west end of the edifice, divided by a handsome square, and a splendid new street at right angles with the meridian of the cathedral, which terminates nearly in the centre of Crescent Place, New Bridge Street. The semi-circus is then continued to the eastward on both sides of the Cathedral, where, joining with St. Paul's Schools on the east, and to a grand opening near the south end of the new Post Office, it forms an amphitheatre of splendid shops and handsome houses, which it is proposed to name the Amphitheatre of St. Paul's. Near to the centre of the amphitheatre, parallel to the meridian of the Cathedral, and opposite to the transepts, are two other wide and handsome streets. That on the north crosses Paternoster Row, and terminates in Newgate Street, and that on the south a little below Thames Street, where it is proposed to build a new market, as midway between Hungerford Market and Billingsgate. This market will be appropriated to the sale of fish, poultry, fruit, vegetables, and other similar produce that comes down the river from the neighbourhood of Chelsea, Battersea, Fulham, Putney, Brentford, and Isleworth.

Another new street will be formed opposite to the Old Bailey by widening the passage into Water Lane, and carrying it obliquely into Earl Street. The importance of this street, leading as it will from Blackfriars Bridge to Smithfield Market, is great and obvious.

Among the leading advantages of this improvement to the public will be: widening all the approaches and avenues to and round the Cathedral; making the north side passable for coaches as well as the south side; and facilitating the approaches to and from the new Post Office, by which means the splendid Cathedral, which is so justly the boast of our metropolis, will be then thrown open to a proper vista. At the same time a due regard is paid both to profit and economy, as the new streets and amphitheatre will form the handsomest and best streets and sites for business in the city.

This improvement, as we all know, was never carried out. St. Paul's is still crowded in on the north-east.

In some respects Evelyn's plan is like Wren's, and it seems to suggest that some common principles underlie both schemes, although they were drawn up independently. Wren's plan was preferred, and with reason, for it is more practicable, more sane, and perhaps more beautiful. Still, as before mentioned, the plans are somewhat similar: the crescent west of "the New Channel, with radiating and concentric streets; the great approaches to the Cathedral from the north-east and south-west—these are contained in both. Evelyn, however, has a third street bisecting these and running due east, opening out into squares and circuses of noble dimensions. In one of the former was to be the Lord Mayor's house, and the latter was to be adorned with fountains. It terminated at St. Dunstan's-in-the-East. The approach to London Bridge was treated somewhat similarly by both. Evelyn's streets debouch in a circus at the head of the crescent; Wren's radiate to the centre of the crescent itself.

The arrangement of the river front is dissimilar, and although the position of the Custom House is the same, the Royal Exchange is placed on the quay by Evelyn, and is not made the magnificent culmination of splendid vistas as it was by Wren.

From a consideration of these plans it is apparent that the picturesque holds no place in town planning. It is an accidental quality, and must not be striven after. Sanity and convenience alike demand wide and straight streets for the main thoroughfares, widening out at intervals into open spaces to entrap the sun and enlarge the prospect.

The principle underlying both plans is simplicity. The great buildings are made centres from which to work; lesser public buildings are used to give a rhythm to streets of uniform height which might otherwise become monotonous; churches are carefully placed, and natural features are not disregarded—witness the design for the river front. This is true civic planning, that aims at nobility of aspect as well as at utility, and that is autocratic enough to draw a straight line where it is necessary for grandeur, dignity, and use.

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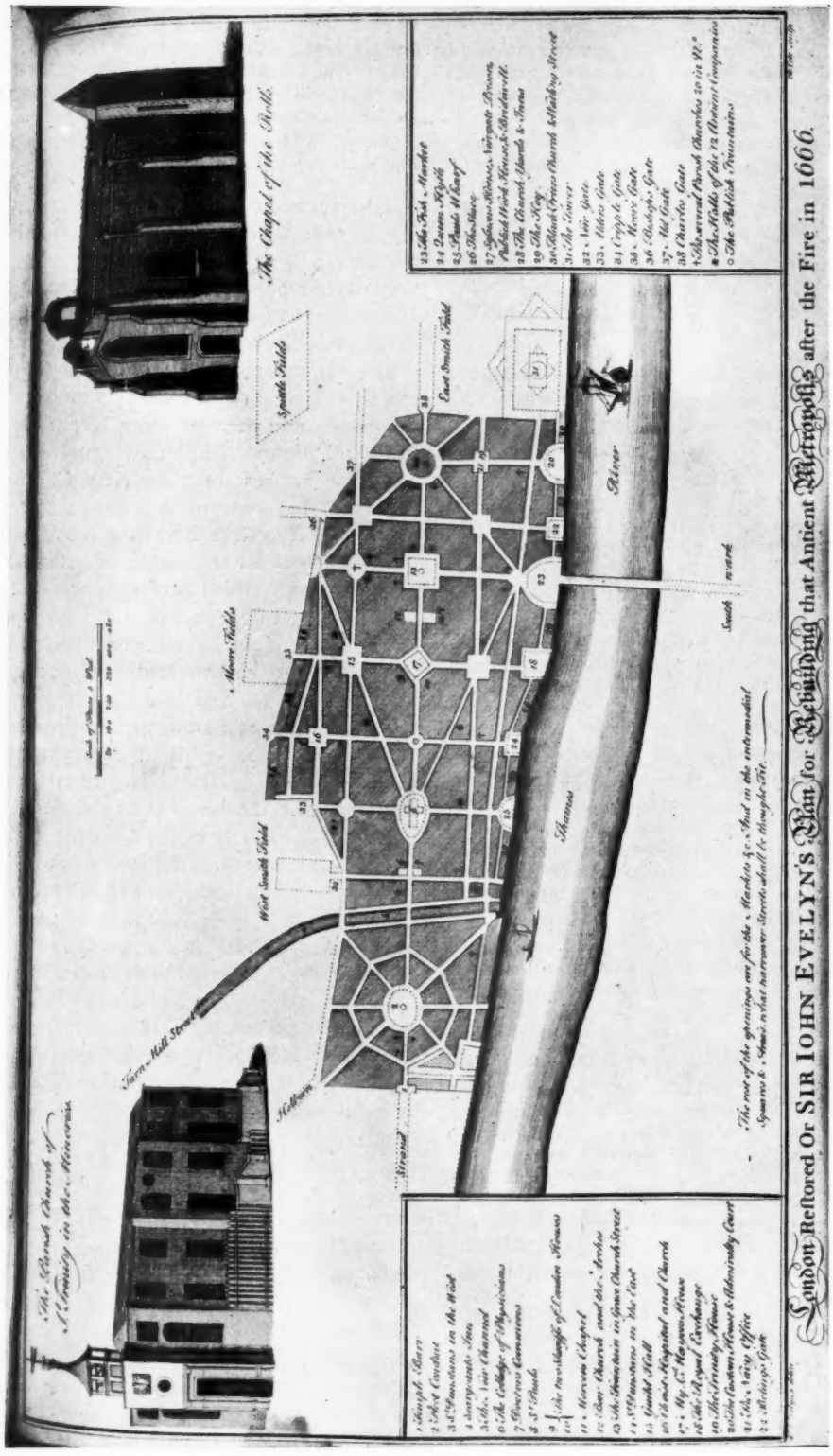


EVELYN'S PLAN FOR THE REBUILDING OF LONDON AFTER THE GREAT FIRE OF 1666.

Reproduced from an interleaved copy of the Parentalia

THE *Courier* of Wednesday evening, November 9, 1825, publishes an extract from a scarce tract of the late Isaac Reed. It is headed "St. Paul's Cathedral," and reads as follows:—

An account of monies received and voluntary gifts at the stair-foot going to the top of the church of St. Paul's, from the 25th of March 1707, when the application of it to charitable uses commenced, to the 22nd of March 1710–11, when the Dean and Residentiaries put a stop to such a disposition of the said monies, and directed the monies arising at that and some other doors for the future to be divided among the minor canons, lay vicars, and vergers. Gross receipt within the said time, £339 18*s.* 4*d.*, which has been paid as follows:—

	£	*s.*	*d.*
To several surgeons and apothecaries for the cure of men hurt and maimed in the works . .	187	13	10
To widows whose husbands were killed in the works	30	0	0
Putting out and clothing several apprentices . .	75	0	0
To men disabled in the works and past their labours, conveying some of them to the place of their nativity	35	0	0
Coroners and funeral charges of men killed in the works	12	4	6
	£339	18	4

April 16, 1711.

(Signed) Richard Jennings, Master Carpenter.

Is this the record of an elementary forerunner of the "Workmen's Compensation Act"?

Unfortunately no information is given as to the treatment of the "men hurt and maimed" during the preceding thirty-odd years in which the cathedral was building. But in the years between March 1707 and 1710–11 the "surgeons and apothecaries" seem to have done very well by themselves, and the "widows" very badly.

Of course it may be that by 1711, when the collected moneys were diverted from their charitable uses, all the high scaffolding had been removed, obviating the possibility of further accidents; and, for the sake of our estimate of the characters of "the Dean and Residentiaries," we hope that this was the case.

The dome had been covered with lead some time about 1708–9, and the last stone to the lanthorn was laid by Wren's son in 1710. It was pretended that all the unfinished works about the cathedral would be completed in 1711, for the "standing salaries to any officers employed only for the carrying on and finishing the said building" were to cease by the end of that year.

After the topmost stone of the lanthorn had been laid, there were still the ball and cross to be erected and various sculptures to be completed, but it would not have been impossible to accomplish this in the prescribed time.

After these were finished the only external work undertaken was the erection, some years later, of a balustrading round the building, contrary to Wren's wishes.

* * * *

IT may be that the Royal Academy exhibition possesses one or two pictures of surpassing merit; but the New English Art Club has just as many, and maintains besides a high level in the bulk of its work. The great difference, however, is in the ideals of the two societies—while the former is content to follow a conventional track with eyes half shut, the other is alert, wide-eyed with surprise at the beauty of the universe, always serious, always trying to win to new goals. In short the latter exhibition is extremely interesting. It is no weariness to go round these pictures; rather a great pleasure mingled with surprises. It is, perhaps, invidious to single out work for first notice, but it is necessary to make a beginning.

Mr. William Orpen's portrait group is among the important ones. A fairly large canvas, it shows a group of men seated round a table. The composition is fine, and the natural and unconstrained attitudes of the sitters full of art. A subtle atmosphere gives the whole arrangement unity, and its delicate silver tones and quiet colour make it an exquisite harmony in paint. The dead ptarmigan, by the same artist, is extremely fine. A man holds with his outstretched hand the dead bird. Again the main scheme is a quiet grey, enriched by the stronger colour of the man's face and heightened by the white feathers of the ptarmigan. Strongly painted, the execution is carried to a successful finish.

Mr. Sargent usually exhibits some of his most vigorous work here. Really wonderful in execution, dexterous and facile, his pictures are a continual surprise. But, while we are carried away by the dexterous technique, we always feel that the sense for exquisite colour is lacking, and, with this, the perception of subtle tone. "The Black Brook," "The Solitary," "Far niente," "Under the Olives," are amazing pictures, and the handling of the paint in them is little short of miraculous; yet we miss the exhilaration in our blood which fine colour would cause. Of these, the first leaves the pleasantest impression—dark, mysterious waters are in deep shadow, with a girl sitting beside them, half in the shade and half in the light. In "Far niente" there is a wonderful

passage of painting—a figure lying in the foreground with head away from the spectator. The face is covered with a veil, and the magic lies in the foreshortening and the rendering of flesh under a veil.

A place of honour has been given to Mr. Philip Connard for his "May Morning," which is hung over the mantelpiece in the large room. A lady in white is placing a vase with mimosa on a table dressed with a white cloth and with a few dishes on it. At the far end of the room two figures look out of a window. Perhaps without Monet this picture had never been; yet it is no copy. The room is full of light, the white dress of the lady dazzling, a wine-glass on the table sparkling. Here is a distinct achievement. Great dexterity in the managing of the paint is displayed, but its great beauty is the painting of light and air.

Several of his other canvases—as "A Spanish Lady," "Au Dessert"—deal with similar subjects. In the latter a woman is sitting at a table set beside a window. The sun lights up the chintz curtains, illumines one side of the sitter, picks out spots here and there, and fills the room with light.

"The Way down to the Sea," by Mr. A. E. John, is a difficult picture to place. Curiously enough, a first impression reminded us of Michelangelo's "The Deposition from the Cross," in the National Gallery. In the main idea the picture is a great one, the figures composing it of noble mould, their pose statuesque and grand. But beyond this what can we say?—that the painting rather repels us.

His portrait of Mr. William Nicholson is very original in conception, and an attempt has been made, with some measure of success, to get tonal quality; but again the painting is crude. Of the former picture many able studies are shown in the black-and-white room. One, a nude (No. 172), in pencil and charcoal, is most vigorous. The figure is repulsive, but it is so true, is the result of so keen an eye, that we cannot help admiring it. The other studies are draped, and are washed in water-colour.

"Hunt the Thimble; or, the Little Cheat," by Mr. Henry Tonks, is a charming little picture. As the name denotes, a group of figures are at play in a room scintillating with firelight. The effect is very good, and the colour is pleasant. The portrait of Mrs. Gamble by Mr. Ambrose McEvoy is striking, but it is rather spoilt by trifling accessories at the base of the dress which might with great advantage be entirely wiped out. Painting from the nude is unfortunately much neglected, and we should be glad to see more of it. "Carlina," by Mr. William Nicholson, is a graceful painting, with fine drawing of the nude. But in colour it does not succeed, and the wonderful palpitating flesh has not been caught. Yet it has much to recommend it; the *svelte* contours of the body are carefully rendered and with a good deal of vigour.

An exquisite cabinet picture is shown by Mr. F. H. S. Shepherd, "The Bach Player." A man is seated playing at a piano. The arrangement of the picture, its quiet and lovely tones, give it a rare distinction.

Some fine landscapes are to be noticed. "Under the Cliff," by Mrs. Cheston, shows some figures at the base of a cliff. The whole arrangement is pitched in a high key, and the feeling of the open air has been well suggested.

This quality is characteristic of much of the landscape work exhibited. "Nordenheath," by Mr. John Everett; "Pasturage," by Mr. Mark Fisher; "The River Wye near Chepstow," by Mr. Wilson Steer, are all excellent in their several ways.

"A Woodland Pool," by David Muirhead, is of a dramatic nature. An arched opening between trees shows the pool illuminated by the rays of the setting sun. His picture of "The Church in the Fens" is also good.

We should not like to leave the oil-paintings without mentioning some very good still-life studies. One of the best is called "Iceland Poppies," by Mrs. Clive Bell. In tone and colour it is perfect, and of the gentlest harmony.

Mr. Mark Fisher has a more robust painting of flowers, and Mr. Gerard Chowne has one or two pleasant studies.

In the water-colour room the same ability is manifest, the medium is understood, and here is a collecting of quite charming works. Mr. D. S. MacColl has two very dainty drawings. Those of Mr. P. Wilson Steer are more vigorous, and Mr. A. W. Rich has a number of fine studies of interesting bits of architecture.

"The Chalk Pit" and "Cloudy Weather," by A. H. Fullwood, are two exquisite examples of work in the daintiest medium in the world.

Some fine drawings are exhibited—among them a red chalk study of the nude by Mr. W. G. von Glen, and a study of the back view of a nude by Mr. Philip Connard. Mr. Frank Dodd shows several etchings, done in a fine manner of execution.

An extremely interesting feature ot the exhibition is a number of drawings by Mr. Max Beerbohm. They are in his usual mocking vein, and are immensely clever. The title of one, "Triennial negotiations between Mr. Heinemann and Mr. Hall Caine," renders comment superfluous.

THE Old-Bath Preservation Society has issued two pamphlets dealing with the proposed mutilation of Bath Street. This society was formed, in the first instance, with the object of preventing this occurrence; but, to quote from the foreword to the pamphlets, it further contemplates:

1. Aiding the citizens to maintain their valuable architectural heritage;
2. Directing attention to places and objects worthy to be preserved.
3. Fostering a feeling of pride in the historical, literary, and artistic associations that cling round the city.

It proposes to itself a wide field of action, and should prove a useful institution. Fortunately the day is past when only mediæval architecture was considered worthy of protection, and recently a good deal of attention has been directed to the study of Renaissance architecture by the general public, the result of which seems to be a desire on their part to preserve it as far as possible. Isolated letters to the press have protested from time to time, but usually in vain, against various acts of vandalism. From want of organisation, however, they have missed their full effect. The aim of this society is to remedy this defect, and by a powerful combination stop at least all unnecessary violence to work of the seventeenth and eighteenth centuries in Bath. The society proposes further to publish from time to time "pamphlets dealing with Bath, its architecture, historical associations, and objects of interest."

It seems a curious anomaly if the Bath Corporation, ostensibly acting for the citizens, should be able to proceed with an act of destruction condemned by an influential body of residents, who are moreover powerfully supported from outside. But such seems to be the state of affairs that the Corporation cannot or will not withdraw from their position.

The first of these pamphlets contains a brief history of Bath Street and a full description of the Council Meeting of March 2, at which a deputation, headed by the Rector of Bath, protested against the threatened mutilation of this street. From the general tone of the discussion at this meeting it was felt that future acts of vandalism would be probable, even if Bath Street were saved, and that it would be advisable to take further steps to prevent them. A provisional committee was instituted, with the Rev. Prebendary Boyd as President, and it was decided to hold a public meeting.

The matter was taken up in the leading London journals, and a unanimous opinion expressed against the proposed mutilation, and many sympathetic letters from influential sources were received by the Rev. A. S. Boyd.

At the public meeting held at the Assembly Rooms on Saturday, March 27, letters were read which had been received from some of the most distinguished men in architecture and art, and interesting speeches were made by Professor Beresford Pite and Mr. D. S. MacColl, of all of which the first pamphlet gives a full report. The second gives at length "The official statement of the Bath Corporation, examined, criticised, and refuted in every important particular."

We wish the society every success, and are sure it will do very useful work. "As old Bath may be fairly considered a national possession," it was thought advisable to make membership open to all who are in sympathy with the objects of the association. The minimum subscription is 1s. (to cover necessary expenses), and contributions should be sent to either of the honorary treasurers, Mrs. Dominic Watson, Bathampton House, Bath, or Mr. Mowbray A. Green, 5, Princes Buildings, Bath, by persons desirous of joining the society.

* * * *

IT is probably true that "the dicta of the authorities on art and good taste are a little contradictory and confusing to the lay mind." But in spite of this it could be shown that there is a common meeting-place where sane and reasonable critics are in agreement; and this consensus is the more observable the nearer we approach to those phases of art which are termed "classic." We doubt, for example, whether two opinions have been expressed, or are possible, about the "Maidens" of the Erechtheum, regarded as sculpture. It is true that architects have been known to condemn them as being architecturally unsuitable; but we imagine that this criticism was still-born. For ourselves, we can remember, in the whole range of architecture, no more pleasing invention, none more exquisitely wrought to a consummate conclusion, than this portico. Never has sculpture been used more beautifully for the adornment of the *Mistress Art*. The figures are architectural; they express little or no action; they balance one another. Yet there is nothing monotonous in the arrangement, for the poses are slightly varied, some of the figures leaning on one leg, some on the other, and of course the draperies are different. Of the positions of the arms it is impossible to

speak, as they have all been broken off. One of the "Maidens" is in the British Museum, while the other five remain *in situ*. Deprived of its true setting, placed far otherwise than in the luminous air in which it was born, it is yet one of the finest sculptures in the world. Nothing could be more beautiful than the way the draperies fall over her breast, nothing more perfect than the long vertical lines falling to her feet, forming delicate flutings and concealing the leg over which they hang. The draperies are tightly drawn over the other leg, scarcely concealing it. Her mutilation cannot conceal her beauty nor can age defile it. Eternal type of maidenhood, she will endure with the terrestrial globe, guarding ever a sphinx-like silence. Not only in Greek art, but in other great periods of artistic activity, is there safe harbourage for the lay mind.

Opinions differ about the roof of the Sistine Chapel, just as they differ about the explanation of natural phenomena; but through all criticism of the painting of the ceiling there is a note of wonder. Few things that have been made by man possess greater majesty, and there is nothing that awakens a greater feeling of admiration and awe. Michael Angelo becomes as a god, fashioning at will heroic figures of man and woman, fair shapes of youth, of childhood, of motherhood. One may object to the principle of painting a ceiling and vault; but here one thinks only of the conception and execution.

It is not so well known as it should be that there is a fine roundel of the Holy Family by Michael Angelo in the Diploma Gallery of the Royal Academy. It is a sculpture of great beauty, unfinished alas, but possessing, perhaps because of that, an elusive beauty. It is like beholding the act of creation to contemplate this marble; to see, divinely figured, the limbs, body, and arms of a child struggling into life. To study the chisel marks developing round on round of the body, disentangling expression out of the inert stone, is to witness a miracle.

The picture called "Sacred and Profane Love," in the Borghese Gallery, is another of those stupendous performances that make us cherish art as the most beautiful manifestation of man's activity.

But these are the high places—the mountains touching the sun—and about their altitude there is little diversity of opinion. It is in considering the work of our own day that criticism becomes tentative and uncertain. In painting and sculpture there are many different schools, but for the layman it is not necessary to take sides. He, more easily than the artist, may see the good of both.

But in spite of all drawbacks, of divided aims and opposed methods, there is a steadily increasing body of enlightened public opinion interested in the "arts of life," if they may be so called—the arts immediately connected with life. Buildings of all kinds, furniture in all its diversity, drawings, paintings, gardens, interest increasing numbers year by year. To this growth of interest the recent revival in craftsmanship, the Renaissance in domestic architecture, the numerous societies formed for the express purpose of reproducing drawings and paintings, all bear witness.

In recent work there is much with which fault may be found; yet, on the whole, the outlook is more hopeful. There is a noble simplicity, the outcome of consummate art, the expression of a great idea; but there is a baldness which is also simple, and is a sort of negation of art. If the latter is too prevalent in modern work, it is probably a revulsion from the heaviness of Victorian methods. It is certain, however, that we are witnessing a renaissance of the "arts of life." As a consequent of this revival, books in greater number than ever before are published on all art subjects, and there is no doubt that these will take wider effect as time goes on, and that the appreciation of architecture, so necessary to its development, will become general.

In the Renaissance proper, many sumptuous books on architecture were published and directed to amateurs, builders, and architects indifferently. These helped incalculably to keep alive a healthy taste in the art. The result can be seen in the buildings left to us even from the eighteenth century. Leaving out the great buildings, there is scattered all over the country a body of work fairly level in the matter of achievement. It is not necessary to claim for these buildings high invention or genius in the designs. The point is that they were possible because of the taste of the builder and his lay brother.

A barren century intervenes; and now, instead of a well-marked tradition and undivided aims, a sort of anarchy reigns. This shows signs of passing, as we suggested above. In the meantime it behoves us all to endeavour to bring back unanimity of aim—that art and architecture may flourish proportionally with the more material activities of life.

* * * *

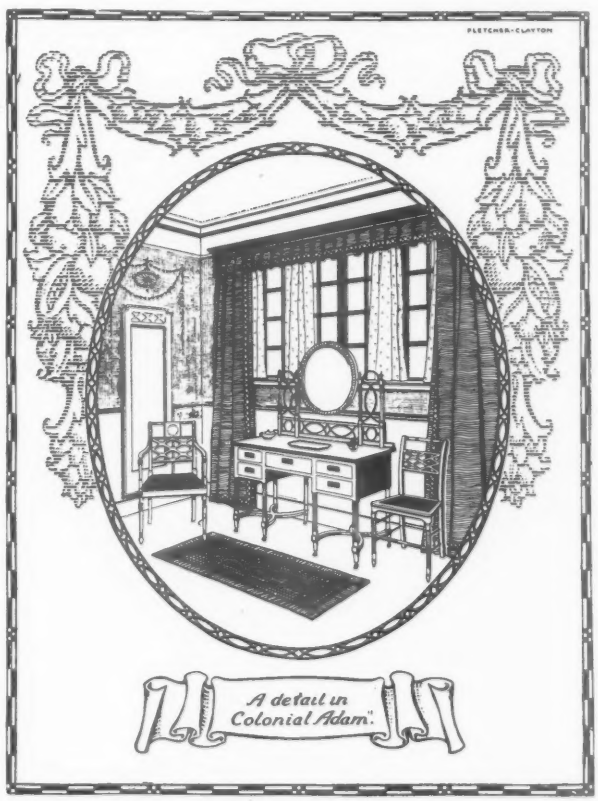
"I HAVE, for instance, listened to ravishing music, turned over portfolios of prints rare and beautiful, handled the most exquisite of ivories in rooms the offence of whose furniture was of the rankest, and smelt, emphatically, to heaven." It is a

curious paradox, as the writer, Mr. Joseph Thorp, points out, that fine taste for many art products does not always include a nice taste in furniture. And although we have never "handled the most exquisite ivories" in rooms that smelt, we have, however, often listened to music, feeling quite unashamed, sitting on "horse-hair."

Most of us by this time have taken a decided dislike to Victorian furniture, and prefer that from an earlier period. But it would be a pity if our liking for the old and the antique were to blind our eyes to the beauty belonging to our own times. We do not want to be of those who complain that "the time is out of joint." Among the recent revivals in the domestic arts none was possessed of more vigour than that of the furniture craftsman. Its purpose has been fulfilled—it has created a distaste for what was undoubtedly a bad period, and an appreciation for a better. That purpose served, it has vanished to unknown limbos, and *l'art nouveau* seems to us now, a weary, old, and tiresome fashion, scarcely existing, if it may even be said to do that.

The great drawback of much craftsman's work is invariably faulty workmanship. For ourselves who love reasonable design, we insist with most ordinary people on sound workmanship. We dislike mitres that gape, drawers that stick, and open joints; and that is why, for one reason, our preference is given to furniture about a hundred years old.

The quotation at the head of this note is taken from a book called "An Aesthetic Conversion," published by Heal and Son, which is well worth perusal. Like their work, it is a sound production, beautiful paper and type being employed, and the binding is good. If the writing is at times a trifle "high-falutin," it is English, at all events, and the illustrations are good.



FROM AN AESTHETIC CONVERSION.

THE new Victoria and Albert Museum was opened by the King on June 26, and it is now open to the public. A writer in the *Spectator* records that he overheard in the galleries, "I feel as if I had come into a fortune," and nothing could give a better idea of the impression produced by these vast collections.

The old arrangement gave one the same feeling as an "old curiosity shop," where century is heaped on century like Pelion upon Ossa.

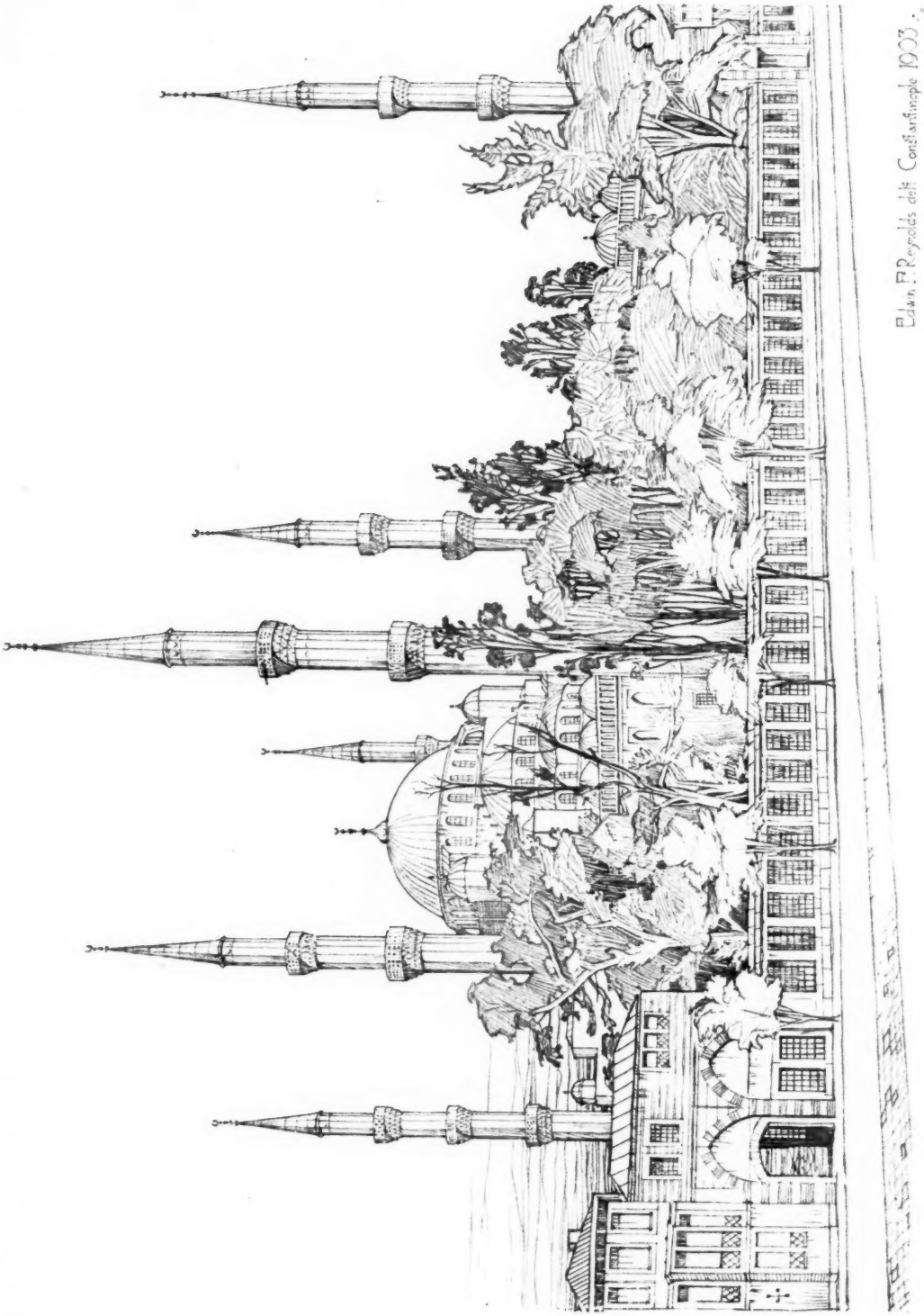
It was almost a debauch of the intellect to feast there, to enter in and lose oneself, as frequently happened, among some of the most beautiful things the hand and brain of man have devised.

We stand beside Elizabeth at her spinet, and strains of music from that bright time steal over our spirit with a movement like enchantment. Then we are brought to a pause by a bagpipe or a hurdy-gurdy, or it may be that a dagger or gun, such as Benvenuto would have delighted in, severs one train of thought and suggests another.

Trajan's Column casts a heavy spell over us, till it is relieved by the dainty carving of a bas-relief.

The *terribilità* of the greatest master of the Renaissance strikes us dumb as his "David" of heroic mould, or his "Moses" who sits guarding an immortal calm, rests on its pedestal over us. More gentle creations of the infinite invention of man lying beside these Titans take us in quieter pathways of art. Ever in one's wanderings there was something strange and beautiful to impress the imagination or move the senses with a quiet pleasure.

Now all is smoothed out in admirable order and sequence in spacious galleries, where students may cull at pleasure from this treasure-house.



VENI VALIDEH MOSQUE, CONSTANTINOPLE
DRAWN BY EDWIN F. REYNOLDS.

Imperial Mosques of Constantinople.

PART III.

THE YENI VALIDEH MOSQUE.

THE development of Turkish mosque building — changed from its early traditions by the conquest of Constantinople and the emulation of S. Sophia, gradually involved in such experimental adaptations of the design of the church as the Bayezid Mosque, and arriving at independent maturity and progressive accomplishment in the mosques Shah-Zadeh, Suleiman, Ahmed, and Yeni Valideh — has been briefly reviewed in the previous articles, but only in general terms, and barely touching on many essential questions. Perhaps the best way to crystallize the generalities in more definite form will be to select one of these mosques as typical of the others, giving a more detailed description, and illustrating it with more complete measured drawings. For this purpose, I propose to choose the Mosque Yeni Valideh, which has already been mentioned, as summing up very completely the normal characteristics of the fully-developed style.

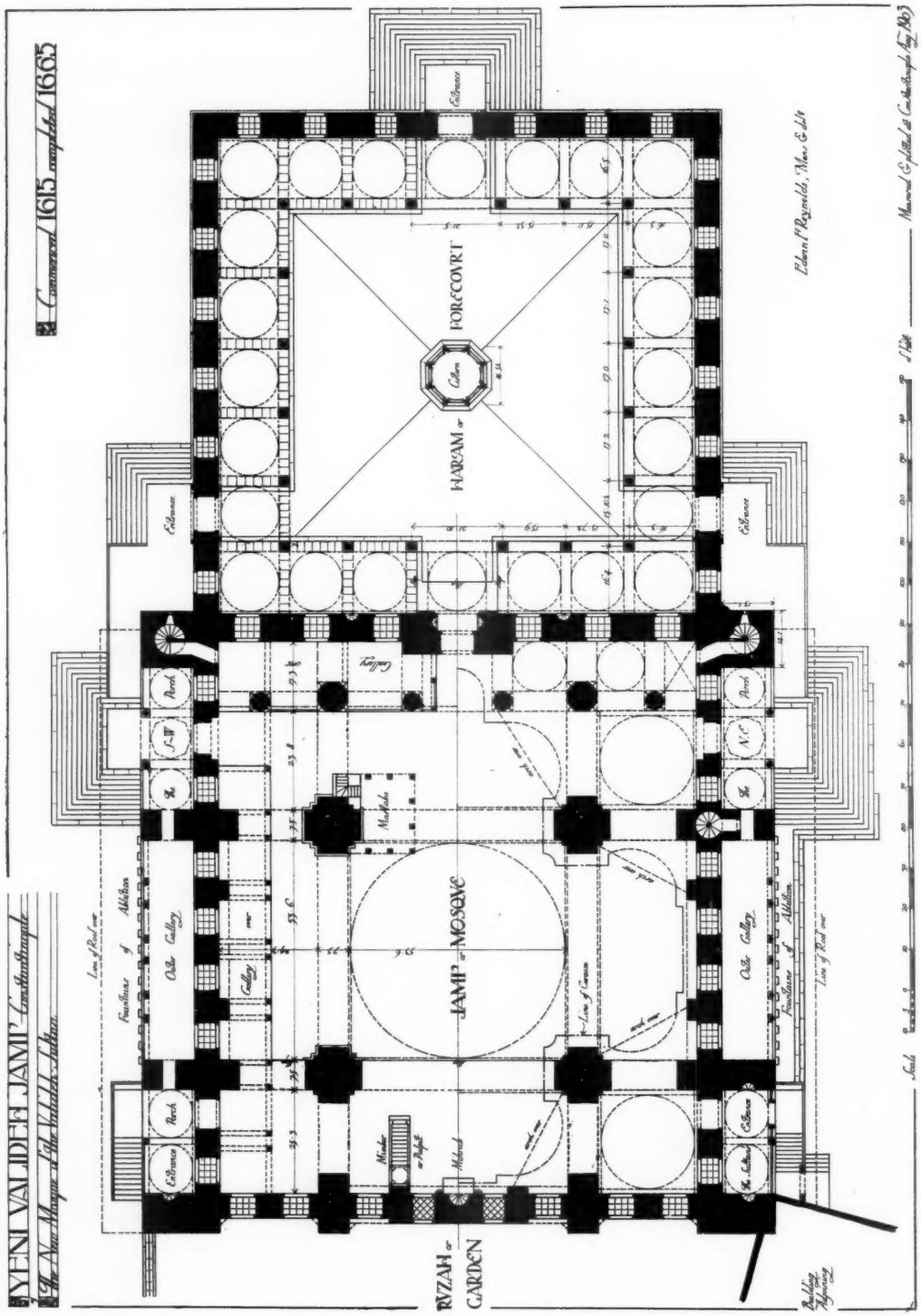
The detailed plan shows many points more clearly than was possible on the smaller scale plans already reproduced. One of the features which would first strike a practical architect is the great flights of steps up to the various entrances. The floors of the early mosques were raised above the ground by a few steps, and these were gradually increased until, here, the floor level of the mosque and forecourt is raised about 10 ft. above the surrounding ground. A fine approach and a massive base is thus given to the building, but I have failed to establish any more practical reason for the custom. The Turks repeat vague tales as to vast cisterns beneath the floor, and the well-known cisterns under S. Sophia give point to their probability; but these alone would not account for the height of the floor, and it would seem that æsthetic effect was chiefly considered.

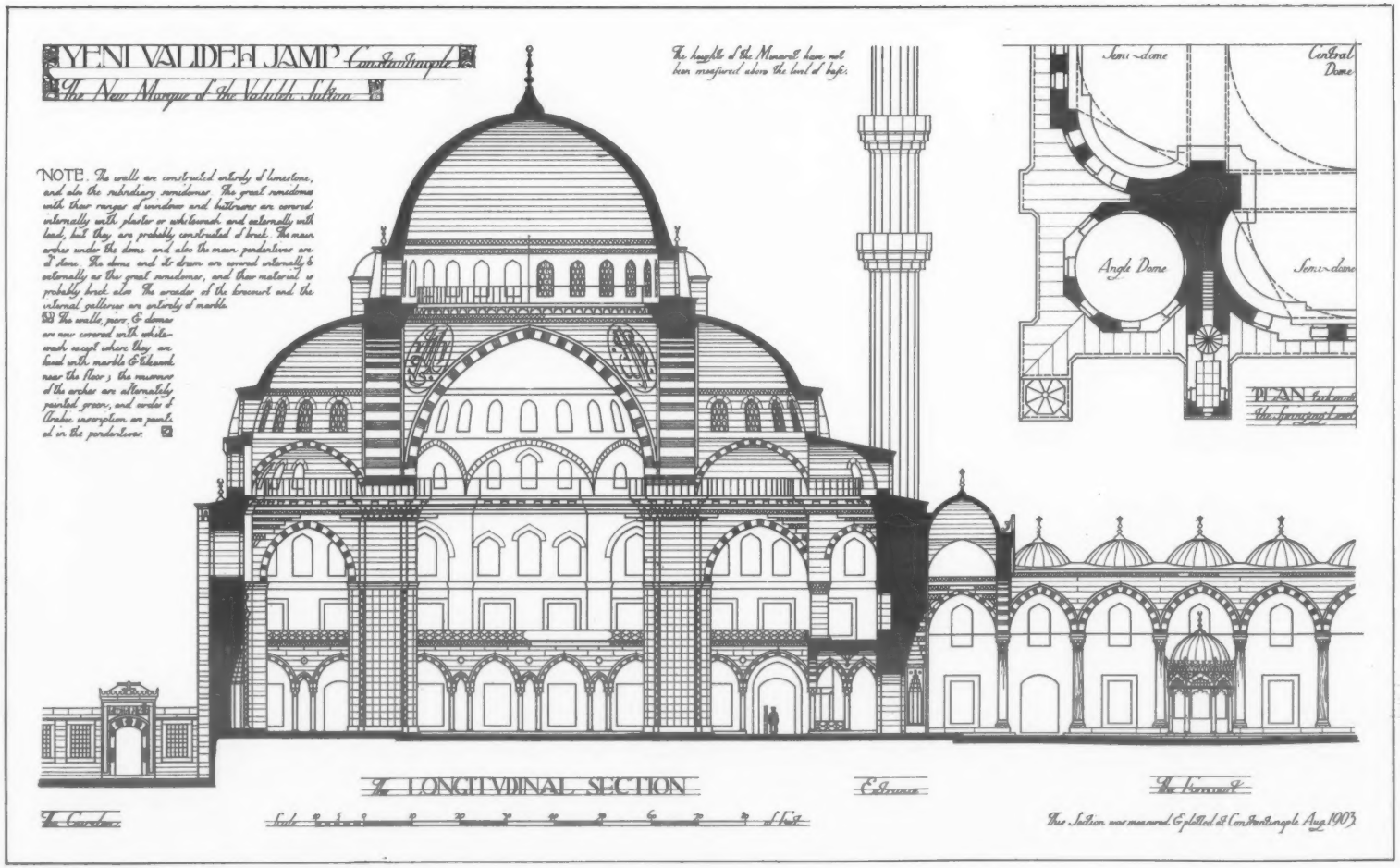
The Forecourt.

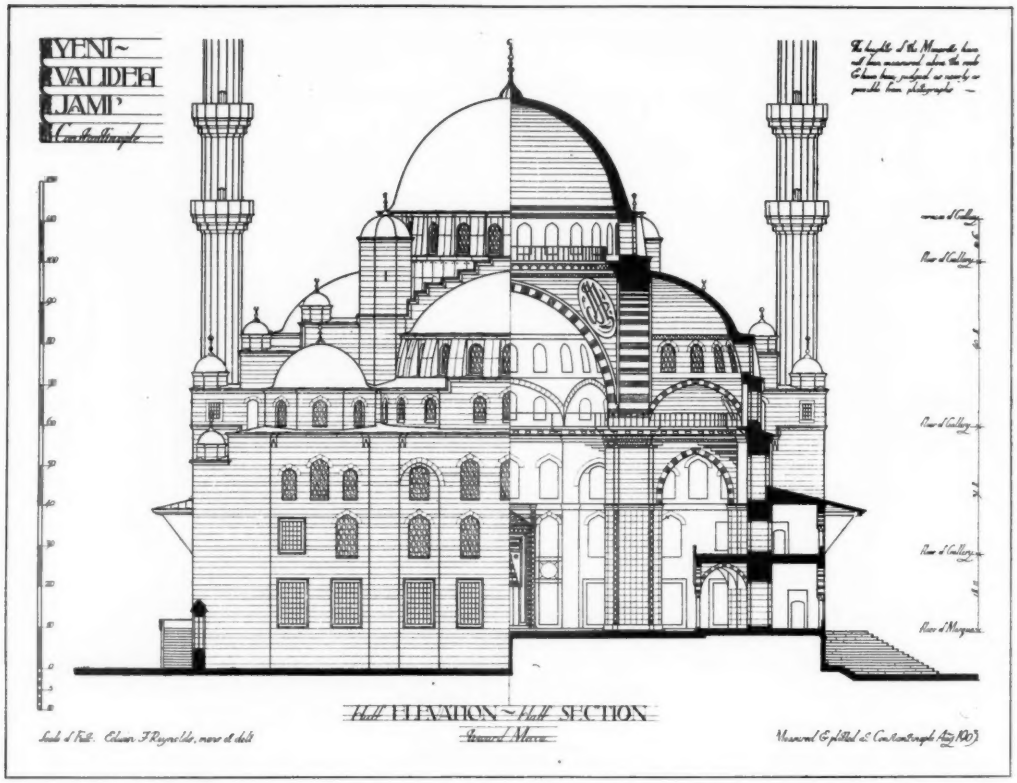
The forecourt is set out in accordance with traditional method, so that its outer walls form a continuation of those of the mosque, their thickness, 6 ft. 1½ in., being practically the same also; and their massiveness is somewhat surprising when their comparatively small height is considered. The court forms an exact square, but the wider intercolumnition of the central entrances makes some of the eastern and western bays rectangular, and their cupolas oval in shape. The arcades are raised above the general level of the court on low platforms, which are interrupted for the entrances. Each bay is defined by pointed arches set on columns, and covered by a cupola on pendentives, and the cupolas emerge from a slightly sloping roof, the whole being protected with lead. The cupolas are constructed with a thin shell of brick, and are plastered internally; the wider bays over the two central entrances are brought to the square by stalactite corbelling, and their cupolas are thus raised above the others. Each bay has a window in the outer wall, filled with a grille of iron bars; and the wall space above is relieved by a panel, which is a traditional survival of a second window. The floor of the court is paved with large stone flags, and slopes down slightly to the fountain in the centre.

Plan of the Mosque.

The setting out of the mosque is largely controlled by the relation of the semi-domes to the domes, and the aisles are approximately half the width of the central square, while the width of the external galleries is about half that of the aisles. The four central piers are cruciform in plan, each measuring 13 ft. 11 in. across. The western aisle is formed by moving the western wall outwards, its place being taken by octagonal piers, and the compartments are covered with four cupolas and two groined vaults, the latter roofing those spaces which remain after setting out the square bays of the cupolas. A curious effect of the independent setting out of the mosque and forecourt is that the windows in the wall, which is common to both, often occur out of centre with the bays of one or the other. As in this case, the effect from the forecourt seems usually to have been considered most important, and the windows have been set out in relation to its bays, with the result that they occur irregularly in the mosque; and on the plan it is startling to see the main arches coming recklessly over window openings. Another instance


YENI VALIDEH JAMI' Constantinople
The New Mosque of the Valideh Sultan
Commenced 1615 completed 1685
FORECOURT
HARAM or
JAMI' or MOSQUE
COURT or GARDEN
Outer Gallery
Fountains of Ablution
Line of Roof over
Minber
Mihrab
Minaret
Entrance
Porch
Scale


YENI VALIDEH JAMI' Constantinople
The New Mosque of the Validah Sultan
NOTE. The walls are constructed entirely of limestone, and also the subsidiary semidomes. The great semidomes with their ranges of windows and buttresses are covered internally with plaster or whitewash, and externally with lead, but they are probably constructed of brick. The main arches under the dome and also the main pendentives are of stone. The dome and its drum are covered internally & externally as the great semidomes, and their material is probably brick also. The arcades of the forecourt and the internal galleries are entirely of marble.
The walls, piers, & domes are now covered with white-wash, except where they are lined with marble & tile work near the floor; the reveuses of the arches are alternately painted green, and circles of Arabic inscription are painted in the pendentives.
The heights of the Minarets have not been measured above the level of the floor.
Semi-dome
Central Dome
Angle Dome
Semi-dome
PLAN
The Longitudinal Section
Edmund
The Forecourt
The Courtyard
Scale 10 5 0 10 20 30 40 50 60 70 80 90 100 of Feet
This Section was measured & plotted at Constantinople Aug. 1903



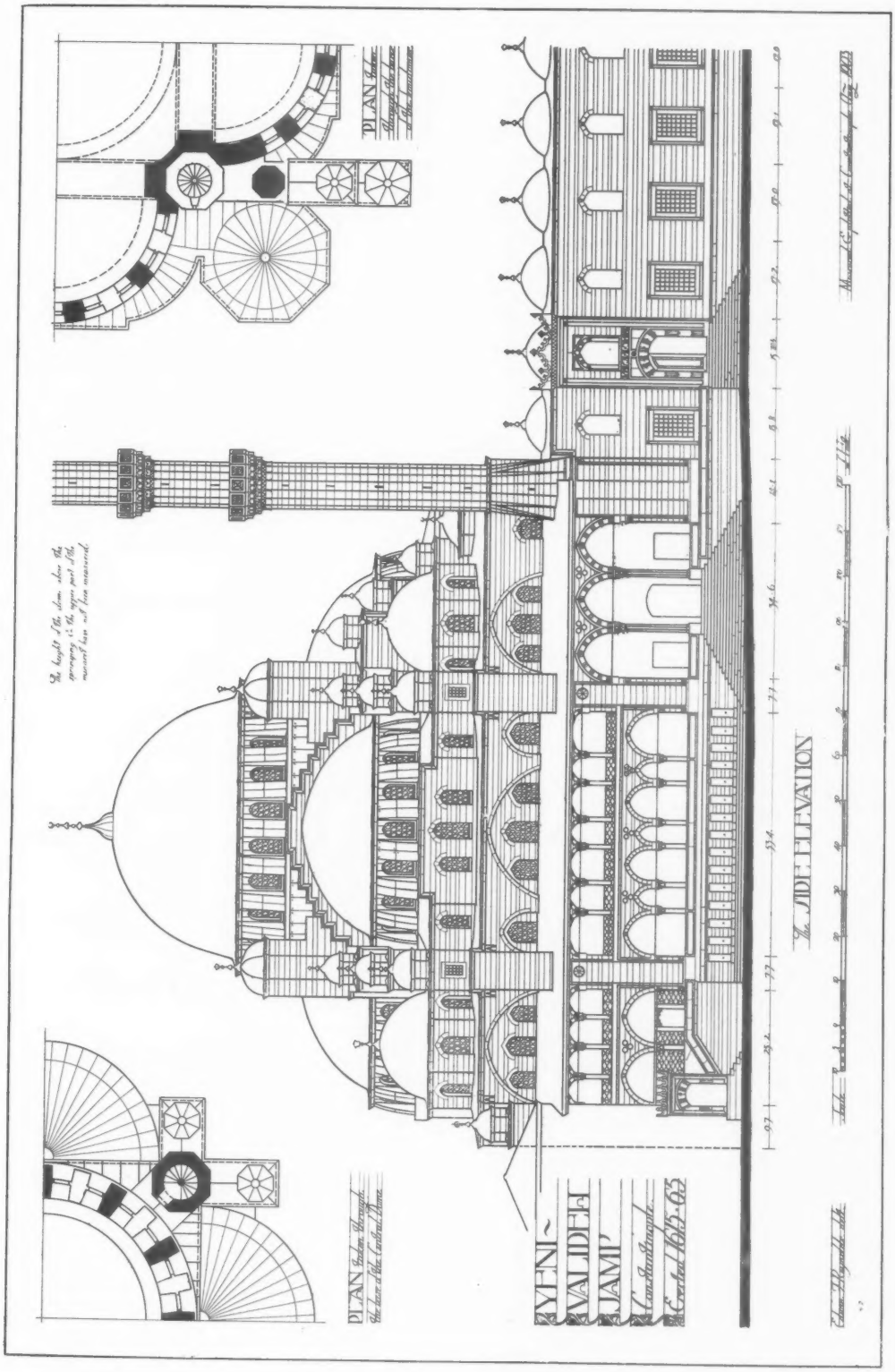
of the same kind occurs in the porticoes of the main north and south entrances. These fill the spaces between the minarets and the great buttresses, and their three bays are set out quite independently of the internal divisions. At the east end of the mosque are two smaller entrances, that on the north side being reserved for the exclusive use of the Sultan. The external galleries fill up the central spaces between the buttresses, and apparently they have no other present use than to shelter horrible beggars and still more loathsome lepers.

In addition to the *mihrab*, or Mecca-niche, there are only two other ritualistic fittings: the *minber*, or pulpit, placed on the right of the niche and used for the preaching of the Friday sermon; and the *mastaba*, a raised platform placed against one of the piers and occupied by a choir of trained elocutionists who recite the prayers. Low galleries are set on light arcading around the outer walls, and are used to increase the accommodation for the crowds which assemble at the festivals of Beiram and Ramadan; while ordinarily the Mohammedan professors teach their classes in them, for the mosques are also educational establishments on a larger scale, secular as well as religious subjects being taught. These galleries were at first introduced with little relation to the main structure, but in later mosques they were treated as a more integral part of the internal design.

The interior is of high proportions, and the general tendency from the first was toward increased height in preference to the broad amplitude of S. Sophia; so that the date of the various mosques may be almost judged by their proportion of height. The lower gallery is 50 ft. 7 in. from the floor, the gallery around the base of the dome is 91 ft. 3 in. from the floor and the summit of the dome rises to about 132 ft. from the floor, or about 142 ft. from the ground. It should, of course, be remembered that this is one of the smallest of the imperial mosques.

The Central Square.

The walls, piers, and arches are constructed of limestone, and the lower parts are faced with marble and tile-work. The main piers have projecting bases of stone, and are covered with blue diapered tiles up to the springing of the aisle arches, a level which is marked by a slight moulding returned around the whole interior. A deep corbelled cornice marks the springing of the subsidiary apses and follows their curves on plan, and stalactite corbelling, built out from the walls beneath, prepares for their reception on the square outline of the lower plan. The projection of the cornice is utilised as a gallery which returns without interruption around the whole mosque, and its pathway is protected by an iron railing.


YENI
VALIDE
JAMI'
The SIDE ELEVATION

The subsidiary semi-domes are closed over by low four-centred arches, and the pendentives between them bring the plan to a true semi-circle. The great semi-dome above is not a continuation of the pendentives, and there is a distinct break of surface at the junction. The lower part of the semi-dome is buttressed externally and pierced with a range of windows, and a slight cornice above them marks a second break of surface. Above this cornice the semi-dome springs afresh with a two-centred curve, and is completed without further interruption. These changes from the form of a true semi-dome are unnoticeable from the floor below, and they may be seen properly only on close inspection and especially by observing their intersection against the backs of the main arches. Their effect is to increase the spaciousness of the semi-domes internally, and to give them greater importance externally, and they were doubtlessly introduced to counteract the foreshortening of perspective produced by the high proportions of the building. As may be expected, these refinements appear only in the later mosques.

The Dome.

The central dome is carried on four great pointed arches, each 7 ft. 7 in. wide, which spring from the lower gallery with a slightly stilted curve; and their square plan is reduced to a circle by means of simple pendentives. A deep cornice of stalactite corbelling is set above the pendentives, and its projection forms a narrow gallery around the base of the dome. Earlier domes usually spring immediately above the pendentives with a slightly stilted curve, having a range of windows and buttresses at the base after the design of S. Sophia. But with a desire for greater height the dome was gradually raised in the successive mosques until in this mosque the stilting has become a definite drum, and the windows and buttresses are applied to it instead of to the dome proper. The wall of the drum is slightly inclined inwards and is pierced with twenty-four windows, and above them the inner surface of the dome is slightly projected on three courses of stalactite corbelling. The internal diameter of the dome is 52 ft.

The drum of the dome is built of brick, plastered internally and with its external buttresses covered with lead. The dome is also covered with lead externally, and internally its material is concealed by plaster or repeated whitewashing; but I should surmise that it is also constructed of brick. The pendentives of the dome and the four great arches are built of stone. The semi-domes are covered internally and externally like the dome, and are probably built of brick, while their subsidiary domes and pendentives are built of stone. Brick was obviously used for the sake of its lightness and adaptability, and it was invariably concealed from sight. In the early instance of the Bayezid Mosque the buttresses and windows of the dome and semi-domes were built of stone and remain uncovered. By constant experience of building, the shells of these Turkish, like all Eastern, domes had become reduced to the least possible thickness, and their tenuity also reduced those difficulties of abutment and erection which were experienced in the massive and complex structure of such western domes as those of the Duomo at Florence and St. Peter's at Rome.

The investigation of the real structure of these great Turkish domes is a problem of the utmost interest, and, at the same time, of the utmost difficulty. In the earlier domes the springing of the curve is considerably below the top of the ring of buttresses, so that some of its possible thrust is absorbed by them; and certain additional flying buttresses, introduced in many instances, point to this intention. But in the Yeni Valideh Mosque there are no flying buttresses, and the curve of the dome springs above the buttresses around the drum, so that the principle of abutting any thrust is out of the question. The only alternative is to regard the dome as constructed in such a way as to exert no thrust, and I can offer no opinion as to whether this is effected by means of a system of bonding chains or courses of stone, or by some adjustment of the jointing. Byzantine domes were often constructed with their thin bricks laid at a flat inclination, but this method seems to have been employed only for facility of building, for some additional precaution against thrust was invariably adopted. Moreover, later Turkish domes, with their full curve and independence of abutment, are essentially different to the dome of S. Sophia, with its low curve and direct abutment; and they are perhaps more nearly akin to that general Saracenic type of dome which was developed in Persia, Egypt and elsewhere. This Saracenic form seems to have arisen from a corbelled structure with horizontal joints, the curve of the lower part stopping before its excessive inclination would render corbelling impossible, and being carried with a flat curve or a tangential straight line to the apex. Such a construction gives a dome without thrust, and also dispenses with the elaborate centreing necessary for an arcuated structure, the latter a most important consideration where wood is scarce. Many Turkish domes have this four centred outline, but the great domes of the imperial mosques are so slightly pointed that they become practically spherical, and an entire system of corbelling would seem to be impossible in this

case. It may be that the lower portion is corbelled with horizontal joints and forms an abutment for the arcuated upper portion,[1] or the lightness of the shell may allow some system of chainage to be sufficient to confine the thrust[2], but the concealment of the structural surfaces by lead and plaster prevent any inspection. Constant familiarity with domical construction had given oriental builders certain traditional methods which, to our inexpert timidity, seem almost impossible; and these methods become the more mysterious and tantalising in that they are practically inaccessible to investigation, and that the school of dome-builders who inherited the traditions has died out, leaving their secrets hidden in their domes.

Returning to the Yeni Valideh Mosque, the dome is crowned externally with a small solid cupola in which is embedded the base of a large finial of wood, covered with lead and gilded, and surmounted by the crescent of Mohammedanism. Four large octagonal turrets are built over the main piers below the dome, and their weight materially assists in securing the great arches. Between them, the walls of the central square are stepped down over the semi-domes, the steps intersecting with the circular wall below the drum of the dome.

The Great Buttresses.

The great buttresses over the aisles are stepped up to the octagonal turrets, a small cupola being placed on each offset. A curious point may be noticed with regard to these buttresses. As has already been said, they had always existed within the building, but in the Suleiman Mosque, with its increased scale and height, they appeared for the first time as a conspicuous feature above the roofs. In that mosque, with its two semi-domes, the buttresses were built on the north and south sides only, and in the Ahmed Mosque, with its four semi-domes, they extend on all four sides. In the Yeni Valideh Mosque, however, they extend on the north, south and west sides, but not on the east side. This variation is curious, for if the buttresses were necessary on any of the sides they were equally necessary on all. It can hardly be supposed that such great erections were built merely for effect, and it becomes an interesting question as to how they could have been dispensed with on one side of the dome. The only reason for their omission which suggests itself is that the buttresses block up certain windows of the semi-domes, and that a complete range of windows was desired in the eastern semi-dome towards Mecca; but, at the same time, this desire for the removal of the buttresses does not provide the necessary means.

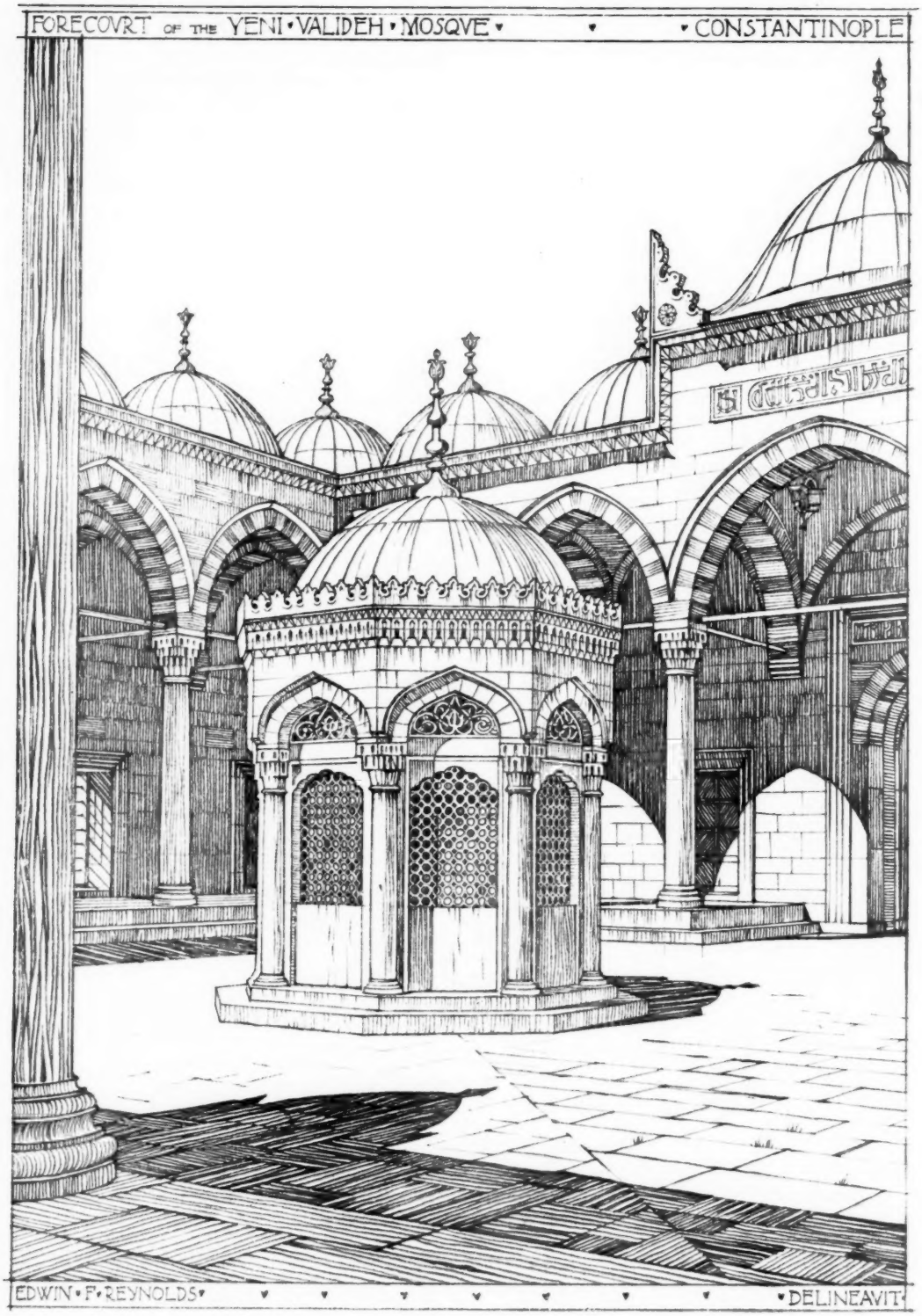
The semi-domes have ranges of windows and buttresses similar to those of the central dome, and below them the subsidiary semi-domes and the cupolas over the aisles rise from the flat roof. The cupolas are here raised on octagonal drums which are pierced with windows, but in earlier mosques the drums were low and unlighted, and were formed by raising the outer walls of the cupolas above the springing, and not in the manner of true drums. Byzantine builders had employed such pseudo-drums to absorb the thrust of their domes, both by direct abutment and also by the weight of the drum walls (as in SS. Sergius and Bacchus at Constantinople, and in S. Vitale at Ravenna); and the Turkish usage was probably derived from this tradition.

North and South Façades.

In all these mosques the square of the outer walls is taken up to a cornice which returns round the whole building at the same level, thus giving a great cubical base from which the domical forms of the roofs spring. At close quarters the north and south sides of the mosque are its most conspicuous façades, for the west side is screened by the forecourt, and on the east is a walled-in garden containing the *turbehs*, or tombs, of the Sultan and his family. The north and south façades of the Yeni Valideh Mosque are entirely typical in design. The height of the floor level above the ground gives a massive basement to the building, and great flights of steps rise to the principal entrances. On the north side is the entrance for the Sultan, with an enclosed stairway approached by a door, and the base wall between the two entrances is occupied by a series of washing places for ablution before prayers. The great buttresses and the minarets rise from the basement, and the spaces between them are filled with external galleries and porticoes. The galleries are two storeys in height, and their arcades are grouped according to the spacing of the piers in the wall behind them. The shafts are circular, the lower arches are stilted and pointed, and the upper arches four-centred; and a solid parapet protects the lower gallery, while a pierced balustrade is fitted between the shafts of the upper gallery. The upper gallery extends over the Sultan's entrance, and the portico to the principal entrance rises in a single height, with its triple arcade set on octagonal shafts. The galleries and porticoes are sheltered and covered by a great overhanging roof, supported by iron struts and extending the

[1] A parallel instance occurs in Gothic work, where the abutment of the vaulting is often increased by corbelling the lower portion of the ribs.

[2] Compare the universal Turkish practice of relying on iron tie-bars for absorbing the thrust of arches.


FORECOVRT OF THE YENI·VALIDEH·MOSQVE· · ·CONSTANTINOPLE
EDWIN·F·REYNOLDS· · · · · · · · · ·DELINEAVIT·

whole length of the mosque; and above it, the main outer wall rises between the buttresses, its windows grouped under arches which correspond with those on the interior.

Windows.

The lower windows of the mosque are square headed and set close to the floor. They are filled with strong iron grilles and usually remain unglazed, and during the colder weather they are closed with wooden shutters. The windows in the upper walls and the domes have arched heads, and, on the inner and outer faces of the wall, they are filled with plates of plaster tracery in which small rounds of glass are embedded. This method of glazing was employed by other Saracenic builders, and also by the Byzantines; and the principle of minutely subdividing the areas of lighting is characteristic of the east, and due to the need of tempering the heat and excessive brightness of the sunlight. The preference for a large number of smaller windows, scattered more or less equally throughout the building, carries out the same principle on a larger scale.

This traditional tendency is shown in the forecourt, where each bay has two openings, although only one storey in height. The lower windows are similar to those of the mosque, square-headed and filled with iron grilles. The upper windows are here represented by an arched panel, but in earlier instances they are open and glazed on the outer face with plaster tracery. The walls of the forecourt have a deep plinth below the floor level, and rise unbroken to the cornice beneath the roof. Owing to the height of the wall, the cupolas emerge direct from the flat-pitched roofs and without the usual octagonal drums. The three entrances have great flights of steps up to the level of the floor, and the doorways are framed with broad architraves which rise to the cornice and are crowned with a richly cusped cresting.

Minarets.

At the junction of the forecourt and mosque, the two minarets rise from their square bases, a complex arrangement of deep splays producing the polygonal plan of their shafts; and freeing themselves from the lower buildings they soar upwards high above the dome. The minarets give more character to the mosques and to the whole city of Constantinople than any other single feature. The æsthetic value of their slender height, in contrast with the broad-domed mass of the mosque, has already been mentioned; and the city would lose half its beauty without the fantastic elegance of their clustered groups. No mosque was ritually complete without its minaret, but their inherent distinction of design soon led to a multiplication of number. Their primary use was to elevate the *mueddin* who summoned the faithful to prayer, so that his voice might be heard above the surrounding roofs; but they quickly grew beyond this first necessity, and to the original single balcony a second and a third were often added. The minarets consist of an enclosed winding staircase of stone, which emerges at intervals on balconies projected on corbelling and protected with a parapet. The shafts are polygonal and are slightly reduced in diameter above each balcony; and above the topmost balcony they rise again to steeply conical roofs, framed with wood and covered with lead, and terminated with a finial bearing the crescent. The construction is strong, and the minarets rise to prodigious heights, but I have no dimensions of the tallest instances. The minarets of the Yeni Valideh Mosque are 9 ft. 11½ in. in the lower external diameter, and their total height is about 240 ft. above the ground; but several in Constantinople must be considerably over 300 ft. in height. The general design of all the minarets to the Imperial mosques is practically the same. The early examples of the Bayezid Mosque have their shafts banded at intervals with a darker stone, and those of the Shah Zadeh Mosque are enriched with a slight carving of tracery; but the minarets of the Suleiman, Ahmed, and Yeni Valideh Mosques are almost identical in detail, and their settled tradition of design was only broken by the introduction of Rococco variations in the later mosques. The minarets are also used for illumination, and on the nights of the great religious festivals, their balconies glitter with thousands of lamps all over the city, their white shafts gleaming with a strange ghostly light in the darkness.

It has sometimes been said that Turkish minarets are the ugliest form of a singularly beautiful feature, but I think that they may claim to have the relative fitness which is the greater part of beauty. Although in themselves they may not lack the rich outline of Cairene minarets, yet the mosques of Cairo have not that complexity of cupola and dome to which the severer elegance of the Turkish minaret acts as a necessary foil.

Forms of Arch.

The forms of arch used by the Turks varied considerably. At Brusa the earliest form is the two-centred pointed arch, while later arches spring with two segments and are continued to the apex with slight curves or tangential straight lines, a form which was common to all Saracenic building and probably derived from a corbelled construction

as in domes already mentioned. In the early mosques at Constantinople the Turkish builders copied the arches of S. Sophia, and in the Bayezid Mosque the four main arches under the dome are semi-circular, although the arches of the forecourt are pointed and described from two centres. In the succeeding mosques all the large arches are pointed, the two arcs meeting at an obtuse angle. But in the smaller arches over the window, no definite rule was established for some time, and even in the same mosque semi-circular and Saracenic arches were used indiscriminately. Ultimately the semi-circular form was abandoned, and the Saracenic arch came into universal use for the windows, although its proportions often approach the two-centred or semi-circular forms. The segmental arch was also employed, but was almost entirely reserved for the doorways. The various forms of arches were frequently stilted, but their curves were never returned inwards in the manner of the so-called "Moorish" arch.

Materials of Construction.

Although brick was used in some of the earlier work at Brusa, yet the later mosques there were constructed of stone and marble; and Turkish building in Constantinople was essentially an art of masonry, the Byzantine tradition of brick construction being carried on only in the domes. The walls of the mosques are built with large blocks of a limestone quarried from the banks of the Bosphorus, a stone which is close enough in texture to be worked with fine detail, and which weathers to a hard snow-white surface. The courses of the masonry are more or less continuous, and vary considerably in depth, and the mortar joints are fine.

Marble was extensively employed in the mosques, and its structural use is combined with a decorative intention; for the same close texture which gives it power to bear great weight also enables it to take a polish which reveals its beauty of colour and texture. The arcades of the forecourt are almost always built wholly of marble, and the shafts and arches of the external galleries and porticoes are frequently of marble. The arcades of the aisles which occur in the earlier mosques have monolithic shafts of marble or porphyry, the columns which sub-divide the aisles of the Suleiman Mosque being some of the largest in Constantinople. The voussoirs of the arches frequently alternate with black or soft red varieties, sometimes fitted together with elaborately joggled joints; and the same principle of alternation is applied to the entrances and often carried down the jambs. The stalactite vaulting over the Mecca-niche and the entrances, the ritualistic fittings and internal galleries, are almost invariably constructed in marble. Turkish marblework generally has a more structural character than Byzantine marblework, and even where it is applied as a facing to the walls it is worked as masonry and not as a veneer.

The roofs, including the domes, are entirely covered with lead, and some such material is necessary to protect them from the violent storms of rain which, at certain seasons, gather in the Black Sea and sweep suddenly over the city. The lead is cast in heavy sheets which assume a beautiful silvery tone, and it is applied with rolls, the water dripping from the edges without gutters. Bronze and iron are used in the grilles of the windows and fountains, but the most important structural use of iron is in ties to the arches. The tying of arches at the springing by bars of wood or iron is a constant tradition throughout the East, and although in many cases the method was used to prevent thrust, it was probably practised so universally as a precaution against the rocking motion of earthquakes.

The mosques are constructed almost entirely without timber. This, however, is due to no scarcity, for there are vast forests within a short distance of Constantinople, and the common houses of the city are built of timber framing and covered with weather-boarding. The complete domical system of the mosques rendered timber almost unnecessary, and, apart from their more monumental character, the development of brick or stone roofs was undoubtedly encouraged by the fear of such fires as had destroyed earlier mosques and churches. Thus it is only the pent roofs over the external galleries and the conical spires of the minarets which are constructed of timber, and the chief use of wood is for the joinery of the doors and the shutters to the lower windows. These are usually of sycamore, divided into small panels to withstand the damp and heat of the climate, and often inlaid with ebony and ivory, and even mother-o'-pearl.

The general setting out of the mosques is extremely accurate, and has nothing of that free compromise which is characteristic of western building. The angles are true, and the repeated dimensions agree almost exactly in all the mosques which I have measured. This precision was perhaps necessary in view of the complicated interdependence of the various parts, but it also accords with the natural eastern taste for applied mathematics. From the time when the subtle proportions of the Egyptian pyramids were calculated, this quality has pervaded oriental art, and the forms of the Turkish mosque of S. Sophia alike were primarily founded on a basis of purely geometrical combination.

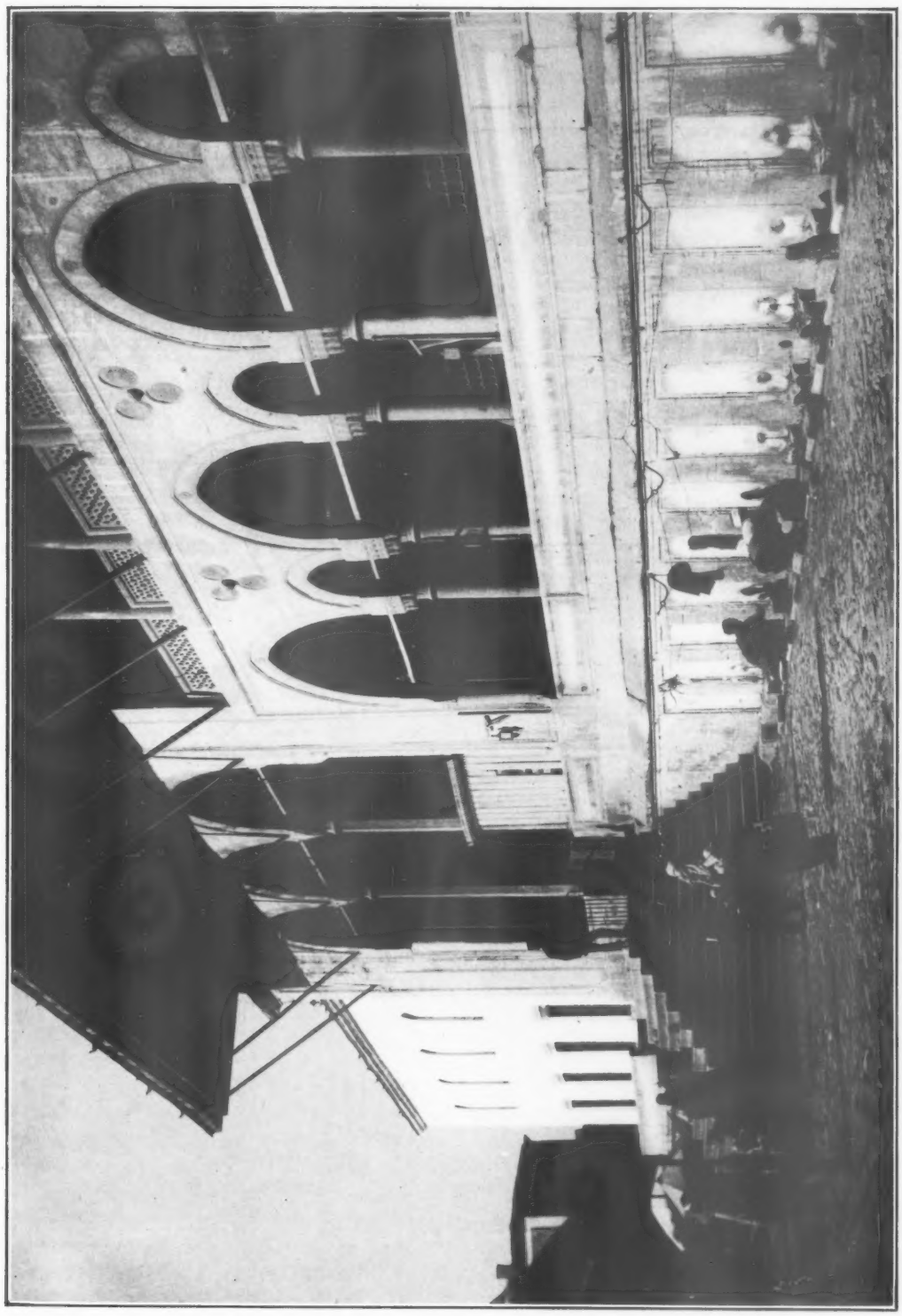


Photo: Sebah and Joaillier.

FOUNTAINS OF ABLUTION, YENI VALIDEH MOSQUE.

It may be useful to state the degree of accuracy represented in the measured drawings which are reproduced in illustration of these articles. The small-scale plans may be taken as correct so far as they go, that is to say in all the main dimensions, the thickness of walls, and the spacing of windows and arcades. In some cases I will not vouch for the accuracy of such details as the projection of steps, &c., and the non-structural fittings of the interiors have been omitted. The small-scale sections which accompany the plans are mere explanatory diagrams. The more detailed drawings of the Yeni Valideh Mosque may be taken as entirely correct in all essentials, and also in such decorative detail as could be shown on a scale of 12 feet to an inch. The dome was measured up to the cornice of the drum, but above that level its height has been judged by observation and from distant photographs. The thicknesses of the dome and the semi-domes at the base are approximately correct, but the thickness of the upper parts could not be measured. The building generally is remarkably accessible, and probably designedly so for the easy repair of the roofs. Winding staircases are built in the great buttresses, passing within them over the aisles, and emerging from the octagonal turrets at the level of the drum of the central dome; and other doors at various heights give access to the semi-domes and the lower roofs. Nothing could give a more vivid realisation of the scale and a closer insight into the method of building than to climb among the buttresses and cupolas as though exploring the peaks and crevices of a mountain, or to wander along the narrow internal galleries around the semi-domes, peering downward at the distant depths of the floor, and looking upwards to the vast embracing curvature of the central dome.

EDWIN F. REYNOLDS.

Photo: Bedford Lemere and Co.

NEW BANK FRONT, EUSTON ROAD.
PROFESSOR BERESFORD PITE, ARCHITECT.

Architectural Education.

Containing a Paper by Mr. Charles Francis Osborne, of the University of Pennsylvania.

THE interest taken in theories of Architectural Education, the advent of so many well-equipped schools devoted to the training of architectural students, seems to indicate a feeling of discontent with existing methods of teaching. In this country at least, most of us, in the past, received our education by some kind of apprenticeship in the office of an architect, supplemented by a course of study such as obtains at the Royal Academy Schools. This supplementary course has been in the main artistic. Design, drawing, and modelling are the chief subjects, and we feel, after all is said, that they are the most important. All of them are life-long studies, and the earlier they are started the better it will be for the student. In early youth is the time to train the eye to appreciate the nicest distinctions of form required to draw and model from the life, and its very subtlety makes it an excellent training to the architect.

It is not expected, nor is it necessary for the architect to be a fine figure draughtsman, but the training is useful, giving to the eye added clearness of vision, to the senses susceptibility to proportion and form. More than this, he has for fellows, painter and sculptor students, and naturally, without effort, he becomes familiar with the technique of the sister arts, and is able, when the time comes, to apply them with precision and judgment. Most of all, the architect is working in an atmosphere of art. Not less is it necessary to begin teaching design when the student is young. More severely intellectual than the other arts, whose technique belongs to the hands, it requires of its students long years of sheer hard thinking before the immature blossomings ripen to fruit.

It may be said that although inspiration is essential to great success in design, it "involves a distinct intellectual process," and therefore the capacity of any student may be developed by his being led to exercise his intelligence in problems of design. And it seems to us that with a sound training in design even the pedestrian kind of ability should be able to scheme charming enough work. One has only to recollect eighteenth-century work to be sure of this. Flitcroft, with his churches of St. Mary's, Hampstead, and St. Giles, working on traditional lines, achieved distinct successes.

Another study which becomes by its nature a relaxation, a study undertaken in the sun and air, and in many lands, is the sketching and measuring of ancient buildings. Than this there can be nothing more fruitful provided it is undertaken in a proper spirit, and certainly nothing more pleasant.

A critical and analytical rather than an historical or archæological spirit is the one in which to work; to endeavour to differentiate between the essential qualities in great architecture and the extraneous and non-essential things, to analyse the structure as one would a piece of verse. The knowledge drawn from this source is of vast importance. Academic designs are but paper and valueless if not inspired by it.

Our feeling for architecture is real when we understand that it is a thing to stand unsubdued through the centuries, washed and wrinkled by rain and storm, bleached and toned by the sun and wind, a thing of strength, and like the eternal hills themselves, a part of the solid earth. Imagination will be disciplined to restraint, to usefulness, to real beauty, by this study.

Architecture in its main features was settled long ago, and in this respect the personal equation can count for little, as the student soon discerns. Genius has been the first to accept this limitation, recognising that nevertheless there are fields wide enough to require a man's utmost strength to conquer; and so genius has been able to impress work with individuality just as the centuries do.

Most difficult of acquirement is a fine and sure taste, without which the greatest ability in design is merely a snare. It is only necessary to examine our street architecture to be amazed at the riotous fancy of the inventions laboriously cut out of solid stone or easily repeated in the plastic terra-cotta.

This can be obviated by nothing so much as a sure taste, and although this will be the result in time from the study of old architecture, a general culture also tends to this end. For "a good tree cannot bring forth evil fruit, neither a corrupt tree good fruit." So the soul must have clear perceptions of all beautiful things, sound and colour and form should be as palpable to the senses, and as much pleasure-giving, as fine wine. Those who have not been strangely moved by exquisite sound,

been given pause by the wonder of marvellous form, or teased out of thought by the pageantry of colour, cannot know the feelings of a creator! No overwhelming flood of inspiration will ever sweep over his spirit, drowning it in an ecstasy of pleasure!

As exercise is necessary to the health of the body, so the mind has need of refreshment to maintain its vitality. All the pleasure to be got from the understanding of the sister arts is at once its refreshment and its infinite reward. Then again, by understanding, may architecture become the Mistress Art.

It is not our intention to underrate the mechanical part of architecture, but only to keep it from occupying too high a place in our education. All subjects in which exact knowledge is attainable can easily be adjusted in a curriculum. The cause of architectural education lies very much in the hands of the present body of practising architects who are continually in touch with great numbers of aspirants, and who possess the power and the judgment to put their pupils in the right way of study. And the value of this system under favourable circumstances may be judged by the invariable success of the pupils of a few eminent men. The office system also stands this test.

What kind of work has been its result? As we look around we have no need to feel ashamed—in domestic architecture our superiority is manifest. Good work of a semi-domestic nature is in sufficient bulk to justify us. It is in the grand manner that we fail, and in this our neighbours, the French, and the Americans excel. The French system of education is magnificent. As M. Gaudet, a professor of the Beaux-Arts, wrote, "chez nous en effet l'enseignement de l'architecture est d'abord avant tout artistique." The chief element is the *concours*, and the French students' education, till it culminates in the Grand Prix de Rome, is one long struggle. M. Gaudet admits, "C'est donc l'emulation, la lutte de tous les jours, qui est l'âme de l'étude."

In Germany, where education is reduced to an exact science, architecture fares but ill, and the tendency is to teach everything that touches it, however slightly. The curriculum is, as a consequence, overburdened with mathematics, physics, chemistry, technical mechanics, descriptive geometry, and indeed theories of all kinds. And there all the heaviness of the most wearisome pedantry is expressed in stone, and for a contrast the grotesque abandonment of *l'art nouveau*.

Modern public work in America possesses, as we have endeavoured to show in these pages, elements of high style, and the education which engenders it is worthy of a great deal of attention. So we direct attention to Mr. Charles Francis Osborne's paper on the training of an architect which he read at the Annual Convention of the Ontario Association of Architects, Toronto, on January 13, 1909. Professor Reilly brought it back with him from America, and wishes it to be known that he agrees with the opinions expressed.

MR. PRESIDENT, GENTLEMEN OF THE ASSOCIATION,—If I venture to take part in your discussion this afternoon, it is because your very kind invitation assures me that in Ontario, as elsewhere, the best minds in the profession are aroused to the importance of securing for the architectural student a systematic course of training, and that when your association is ready to suggest such a course, it will carry with it all the weight of your official recognition and support.

I have, therefore, as my contribution to the occasion, endeavoured to embody very briefly in the following paper certain conclusions to which I have been led by my experience in the field of architectural education, together with some indications of the reasons which have seemed to support them; but as time and space alike forbid a detailed consideration of many difficult questions which are involved in the solution of this problem, it is suggestion rather than argument which I have the honour to offer for your consideration.

Whoever strives to formulate such a programme will soon discover that no progress is possible until one's objective is clearly defined. It is not enough to say that the training of the architectural student is our objective, because back of that lies the question, "What is he to be trained to do?" and back of that again is the insistent demand for a fundamental definition of architecture itself.

Architecture I would define as the art of building, contrasting it, for illustration, with engineering, which is the science of building. As for myself, I cannot understand any other definition of an architect which will clearly differentiate him from all other professional men than that he is a designer of compositions which are to be executed in building materials. The fundamental difference between the architect and the engineer may be made clear by two examples taken from that vast field of building operations in which both the architect and engineer are engaged at their respective tasks. Let us first consider the case of a great dam, to be erected near the headquarters of a river, miles away in the wilderness. This is a typical engineer's task, and the only considerations which determine the lines of the structure are those which arise from meeting the stern demands for resistance to the mighty stresses of the stream in flood, taken in connection with the materials available for its construction and the opportunity for securing an adequate foundation. Every line of the profiles in plan, section, and elevation is determined by the strictest requirements of utility and economy. Let us take by way of comparison some structure completely typical of the architect's work—say a memorial monument. Here neither utility (in the engineer's sense) nor economy is concerned. Any materials the architect may regard as appropriate are at his command, quite regardless, or negligibly so, of considerations of the relative hardness or specific gravity of these materials, to each of which qualities the designer of the dam had to pay the closest attention. Every line of the memorial is determined purely as a matter of feeling, the architect having regard only to this question: "What effect or expression in the finished monument and its setting will be most appropriate to the time, place, and purpose of its erection?"

There is, of course, a neutral zone where the interests of the architect and the engineer commingle, and where co-operation is necessary. This has already taken place, under the pressure of enlightened public sentiment, in such matters as civic bridges, harbour approaches, railway stations, and the like.

It is interesting to note, for instance, in connection with the gigantic operations of the Pennsylvania Railroad in New York, that the company's engineers, while engaged in their underground affairs, have encountered some new problems of construction on a scale of unusual magnitude, and have been able to meet them in the most skilful manner, but that as soon as they emerge to the surface, where their operations become visible in the heart of a great city, they call to their aid one of the most distinguished architectural firms in America to give to the great terminal station an expression suitable to the occasion. There were no constructive problems in the building of the station which the engineers could not have solved, but the feeling they sought for was beyond their powers of expression, and so it was placed in the hands of men who were professionally trained for such expression.

We are abundantly justified, then, in the conclusion that the faculty which differentiates the architect from all other men engaged in the field of building operations is the faculty of imparting to his structures, by means of the attributes derivable from form, colour, and texture, such an expression in each particular case as shall stir the beholder to an appreciation of the fact that the building is pleasingly and appropriately indicative of its function. But when I say this, I do not refer to the exterior or elevation of the composition alone ; for the elevation is inextricably linked with the plan, and when you have an orderly and convenient plan, a good elevation is more than half accomplished. To those conversant with design methods it is not necessary to call attention to this detail, but I do so because I desire to avoid any interpretation of my point of view as assenting to the idea that architecture is construction plus decoration. On the contrary, those qualities which make for good design are fundamental to the solution of the problem, and are developed in the original choice of scheme quite as much as in any details of the plan or elevation.

If ability to design be the distinctive test of the architect, the teaching of design must be the paramount objective of his course. On this point some strange proposals have been made. It has been suggested, for instance, that the *theory* of design should be taught in the schools, and the *practice* of design—that is, the working out of design problems—should be under the direction of practising architects in the office. It has not needed some recent experiments in this direction to show that no good results can come from such a course of procedure. It is based upon a fallacy which has been fully exposed by the *Engineering Record* in a recent editorial dealing with the subject of engineering training. I quote one paragraph :—"There is a ridiculous idea prevalent that a man who is successful as an engineer is necessarily competent to teach undergraduates in an engineering school ; the fact is, nobody can be a successful teacher who does not make a careful study of pedagogics, a subject calling for as much thought and detailed consideration as any course in engineering."[1] This testimony from an engineering source is specially significant.

Personally I am convinced from long observation that there is only one effective method of stimulating the highest powers of the undergraduate for the solution of any design problem, and that is the method of teaching design which has unfortunately come to be known as the French method. I say "unfortunately," because this word "French" seems to act as a curious irritant to many people who are not at all familiar with the thing criticised. These, either through unfamiliarity, or because of an inability to understand the system when it is presented to their scrutiny, fail to discern its real spirit, and suffer their attention to be distracted by such superficial characteristics of the method as might be likely to develop under the skies of France.

This system is based upon the idea that the only way to learn to design is to design. Theories of design are not for undergraduates, and even when discussed by mature minds are usually unfruitful. Good design is purely a matter of feeling, which eludes definition but which can be cultivated by assiduous practice. Problem after problem must be presented for solution to the student, who must work under the eye of a master whose chief vocation is criticism in the atelier. The problems may be of as practical a character as you like, but worked out without too much consideration of how many tenpenny nails go to a pound.

The second question is, "What comes next in importance after design?" The fact that the architect uses building materials to develop his compositions might seem to place a study of these materials and their combinations next on the list. You may be surprised to hear that I relegate this subject to third place in our curriculum, and rate drawing next. If we assign, on the total number of hours in any undergraduate architectural course, fifty percentum to design, I should allot twenty to exercises in drawing from the cast and from life, with an ancilliary course in modelling. Such practice greatly increases the students' powers in design, and though it is not always true that a good draftsman is a good designer, I have never known a poor draftsman who was so. This fact has so often come under my observation that it is impossible for me any longer to question it. Practice in drawing from the figure and modelling should continue during the entire course, so soon as the student, from his previous practice from the cast, is prepared to take them up.

We now come to the subject of building materials and construction, and I will explain why I have placed it as third in importance in the undergraduate course of study. Up to this point the subjects in the course have been included in the field of art. Construction, however, lies within the field of science, and from a pedagogical point of view its teaching must be undertaken in a different manner. Where the teaching of applied science is concerned, all experience goes to show that in his undergraduate studies the student should be thoroughly grounded in fundamental principles and theory, and that no attempt should be made to render him expert in the office sense in their application to all imaginable cases. If we attempt to teach theory by the medium of manifold examples, the average student proves unable to see the forest for the trees. This subject is best taught in an undergraduate course therefore, by courses of lectures, fully illustrated, and supplemented by sketching in the student's notebook of typical examples. Building materials should be fully developed, so that the student may know the characteristics of each, its usual applications, and what may be expected of it in practice. The study of building construction should proceed from simple to the more complex assemblages in all materials, still with continuous sketching. Finally, there should be a course in theoretical and applied mechanics lasting a full year, with special stress laid on graphical statics. The only stated exercise in drawing that I should recommend in connection with such a course (aside from the exercises in graphical statics) would be just sufficient practice in scale and full-size detail drawing as will enable the student to correctly grasp the principles of such work, and prepare him to take up with confidence that side of the office routine. No attempt should be made to make him familiar with all kinds of possible details, for it is futile to attempt to train the undergraduate, even if it were at all desirable to do so, to a point where he can produce working drawings and scale and full-size detail under office conditions with facility and precision.

The fact should never be lost sight of, and especially in this

[1] *Eng. Rec.*, Dec. 12, 1908, p. 655.

connection, that the student's training is to be obtained in two places—one the school, but the other, and equally important, the office. It is in the school that he will learn most of his design, but it is in the office that he will acquire most of his practical knowledge of construction. But his undergraduate course in this latter subject will enable him, if it has been properly taught, to assimilate very rapidly the practice of whatever office he may happen first to enter after his school-work is completed, and by the end of three years' office experience he should be a first rate all-round man, far in advance of a man of similar capacity who entered the office when the student entered the school. It is matter of common observation here that the school man ultimately attains a far higher professional position than is ever possible for the office-trained man. This fact is being so generally recognised with us, that experienced office men are coming to the schools in increasing numbers, in an endeavour to overcome this handicap. They labour under one disadvantage, however, with regard to the study of design, and that is, most of them have waited too long—for you must catch your designer young.

Allowing twenty per cent. to the subject of building materials and construction, there yet remains ten per cent. of the undergraduate's time to be accounted for. This I would allot for the most part to the history of architecture and the allied arts, reserving a small modicum of the time for a course of lectures dealing with professional ethics, office organisation, contracts, and kindred matters, and in a special course given by practising architects of the highest professional standing, who will present to the student's attention instances drawn from actual practice. It is of great benefit to the student to bring him in contact with such men.

A brief word may be said as to the amount of preparation which should be required of the student who presents himself to undertake such a course of study as I have here outlined. The requirements are few, but insistent. Sound training in English; a good reading knowledge of French; the fundamentals of general history, ancient, mediæval, and modern; mathematics up to and including trigonometry; the fundamental principles of chemistry and physics, and descriptive geometry, including shades, shadows, and perspective. No further instruction will be given, in any of these subjects, in the professional school, but the student will make use of his knowledge of them from the first.

My paper, gentlemen, would be incomplete, did I not include some notice of another theory of architectural education which has had some distinguished advocates, but which I am unable to approve.

No one knows better than those of us who are engaged in the field of architectural education how extensive are the boundaries of that field. Indeed, it seems at times to some of us as if no other profession could be so comprehensive and inclusive.

Mother of the arts and issue of the elemental forces of nature acting upon the varied materials of construction, architecture springs from a vast historical background, and touches on every hand the bounds of human knowledge. It is natural therefore that, to some of those who have concerned themselves about the adequate training of the young architect, it should have seemed not only desirable but possible that such a course of study should be devised for the undergraduate as will enable him on its completion to meet any demands which the complexities of his chosen profession may make upon him. To this end it has been proposed that he be taught not alone the technicalities of his profession, but that he be brought into sympathy, through courses in general academic subjects, with all that is best and most broadening in the world of culture.

To carry out this comprehensive programme several expedients have been proposed. It has been suggested, for instance, that the usual four-year undergraduate course in architecture be lengthened to five years, of which the first two shall be devoted exclusively to academic and cultural subjects, and the last three to professional subjects exclusively. Two, at least, of our universities offer a six-year option in a combined course in arts and architecture, whereby the A.B. degree may be taken at the end of the sixth. This is accomplished by permitting the student to take all of the elective hours in the arts course in the course in architecture. The other university requires the equivalent of two years' work in the arts course as a preparation for admission to its course in architecture. Still another has the courage to carry this doctrine to its extremest development, and now requires the degree of A.B. of all its architectural matriculates. It is worth while to note that the president of this last institution has recently declared it to be his opinion that the future welfare of that university demands that it be made the most difficult to enter and the most difficult to remain in of any institution of learning in America. Each of these tentative schemes of education strives to attain the same end, viz., to prepare the student not only for the practice of his profession, but for speaking and writing with learning and discernment on all of its collateral interests as well.

It is not difficult to picture for ourselves the paragon of architectural virtues whom the well-meaning promoters of these schemes of professional training have in mind—though the vision of his activities is somewhat overwhelming. Prepared to discuss with the archæologist the Semitism of the Sumerians or the significance of the labrys supporting the altar of the gate slab of Mycenæ, he is equally at home with the epigraphist in an interpretation of the dowel holes in the Parthenon epistyle. Representing his profession at the annual dinner of the Society of Painters, he takes an intelligent part in a discussion regarding the inexplicable phenomenon of Duccio's art, and later in the evening makes a formal and eloquent plea for the subordination of the mural decorator to the controlling and directing mind of the architect. With the general historian he holds his own in a discussion regarding the correct definition and interpretation of universal history, and yields nothing to the Egyptologist on the point of Iknaton's brilliant witness to the truth of the Semitic conception of the oneness of the Divine Ruler of the Universe. Descending from these transcendental realms to the sphere of practice, at the office next day he learns from his morning's mail, though without too much surprise, that his design for the new National Art Gallery upon the Mall in Washington has won a famous competition. Annoyed by the appearance of an extensive efflorescence upon the brickwork of his Carnegie Library, to which he has endeavoured to impart a fifteenth-century Veronese air, he writes forthwith to his brickmaker for analyses of his clays and to his cement-maker for an analysis of his cement in order that he may determine the source of the annoyance, and apply the proper remedy. Pending the arrival of this necessary data, he turns his attention to the designing of the reinforced concrete cantilevers for one of the walls of his Mining Building at the impending World's Fair at Jumeau—a difficulty having arisen from a pocket of quicksand which has manifested itself in a most inconvenient quarter of the site. In his fifty-four storey warehouse for the Universal Providers (Limited) he has devised a new method of wind-bracing for wide panel designs in structural steel, which bids fair to revolutionise engineering practice in that particular as soon as his method becomes known through publication in the professional journals. He next reviews the sketches of his head draughtsman for the ball-room of the American Embassy at Paris, where he points out the incorrect profile of the consoles of the rosace, which strike an incongruous Louis Quatorze note amid a Louis Seize harmony.

He remembers also to caution his assistant to correct the contour of the buttress weatherings of the new half-million-dollar chapel of ease of St. Simeon-by-the-Waves, where the full-size detail shows them to have taken on a too pronounced Edward III character. Leaving his office for his daily exercise at the Racket Club, he ruminates on his way thither on the essential points of his paper for the Electrical Engineers' Club regarding a new method of closing the solenoid and relay circuits of a type of remote control switch which he has devised for large private installations. After a couple of hotly contested games of squash and a bath, he dresses for dinner, but forgoes an evening of relaxation at the opera to dine with the Sculptors' Society, where he may make an address on the vitality of Donatello's art, with special reference to the qualities of architectural sculpture as exemplified at Reims and Athens. On his return home he concludes his day's labours by revising proofs of a forthcoming article in *The Builder* on "The neutralisation of the action of atmospheric carbon dioxide on building stones"; after which he retires to his virtuous couch, and is soon lost in a profound and well-earned slumber. As he sinks to his repose we awaken from our own dream to a realisation of the fact that he has been but a product of our imagination; for modern conditions have made him impossible. We part from him with reluctance, for he has been a stimulating companion; but we have taken his measure, and may allow him to depart in peace.

Do not mistake me, gentlemen: it is not the cultivated architect I ridicule, but the impossible product of an impracticable scheme of undergraduate professional training. There is something more fundamental than modern in the conditions which make him impossible. There are two laws of intellectual development which preclude him. First, because critical ability—the power of mental analysis in any art—bears an inverse relation to the power of execution in that art. There are exceptions, it is true, but they remain exceptions. Turner paints and Ruskin expounds. Whistler does both, but his contemporaries are the first to admit that he was *rara avis*, and posterity will confirm their judgment. If Berenson has painted a masterpiece it has not yet been catalogued, and we have yet to hear of an edition of *L'Isle des Pingouins* with illustrations from the pencil of the distinguished author. In ancient Egypt the king's architect was a man of war and of affairs whose varied activities make his architectural labours seem incidental. This is possibly where the art of building, as in ancient Egypt, has been reduced to its lowest terms. But as art becomes more complex and refined, it compels undivided attention; and we do not hear that Ictinus distinguished himself in the Euboean campaign.

The operation of the second law is perhaps exaggerated by modern conditions. It has to do with the direct relation between efficiency and specialisation. It was my good fortune during a recent journey to fall in with a distinguished army officer on detached duty at one of the Government's advanced schools of instruction for officers. It was evident from his conversation that he was not only a man of the highest character, but very skilled in his profession. As a brother pedagogue, I naturally inquired in what subjects he gave instruction in the school. I must confess that I was momentarily taken aback by his unexpected reply, "Retreats." A brief period of reflection served, however, to make clear the vital importance to the soldier of knowing how to safeguard his command in the event of not attaining his objective, and that it is better to learn before rather than afterward. Napoleon, doubtless, could have given valuable advice in this matter on his return from Moscow, but the more modern is the better way. So it is in our own profession, gentlemen. Modern environment makes it a condition precedent to our attaining the highest degree of success that, while we may know something of many things, we must endeavour to learn everything of something.

A few words more and I am done. First, to remind you that the vast majority of practising architects in America to-day are men who have received no systematic course of training whatever, and who are consequently forced to rely more and more on the trained men from the schools for assistance. It is upon the skill of these assistants that they specially depend when the importance of the work in hand must meet the requirements of a rapidly-enlightening public opinion in matters of design. Such a state of affairs should make it quite clear that the immediate task of the architectural school is to fit men for such positions and not to repel students seeking a professional training by a prolonged and exacting course of study containing much irrelevant matter, which, if appropriate at all to such a course, should be relegated to the post-graduate curriculum. Those who have proposed the inclusion of such academic and cultural studies in an undergraduate course of architectural studies are evidently unaware of the fact, well known to experienced teachers in that field, that of all the courses of study offered in our universities to-day there is none so well adapted to soften the asperities which may have been acquired by the student in previous unfavourable surroundings, and to develop in him a sympathetic appreciation of all that is best in the world of culture, as is some such course in architecture as that I have proposed. I repeat, with the greatest deliberation and confidence, that as between a course in arts, for example, and a well-balanced course in architecture, the latter will produce in the undergraduate student a much higher degree of fundamental culture than the former. The two courses in design and in the history of architecture and the subsidiary arts will have a marvellous effect in that direction. This has been noted by experienced observers in the École des Beaux-Arts in Paris, and striking cases have repeatedly fallen under my own observation here in America. Moreover, to take the student at the age at which he usually enters our professional schools, and devote even two years to sociologic and cultural studies, as has been proposed in one of the schemes I have recorded, is to lose two of the most vital years at his most impressionable age for artistic training. It is between the ages of fifteen and twenty-one that the student can be taught the fundamentals of design, and the earlier the better if he is ever to develop a first-rate capacity in that field. After that it is too late. And, again, men in the Freshmen and Sophomore years in college are not mature enough to derive much benefit from such "cultural" courses. If they are to be given at all it should be in a post-graduate year. It is one of the soundest of pedagogical principles that a student does his most effective work in any subject if it is taught to him only after his previous work has shown him his need of it.

In conclusion, permit me one word on the subject of foreign travel. No student should regard his professional training as having completed its first stage unless he has spent at least one year abroad, and has especially studied the architecture of Italy. Next in importance I rank France and England, but the student should take as wide a swoop at first as is possible, and include in his preliminary survey Constantinople, Greece, Egypt, and Spain. At some subsequent time he can look at Vienna and some of the German cities, in order that he may make up his mind as to the real value of the Art Nouveau movement; but modern architecture in German lands, outside of that influence, is a negligible quantity.

Current Architecture.

"REDCOURT," WHITFIELD, DERBYSHIRE.

PAUL OGDEN, ARCHITECT.

THIS house was built for Dr. and Mrs. Sidebottom of bricks from the Hepworth Iron Co., Deepcar, near Sheffield, with stone dressings from Chunal Quarry, near Glossop (a local quarry re-opened for this house). The roof is covered with Yorkshire Grey slate from George Vint Bros., Idle, near Bradford, Yorkshire. The joiners' work, including the oak panelling, in the staircase, entrance hall, hall, dining-room and drawing-room, and the mantels in the drawing-room and morning-room, is in oak left clean from the tool. This work, also the stone mantels, was executed by the general contractors. The stone carving was executed by J. J. Millson, City Road, Manchester. The lead lights and iron casements and casement fasteners and door hinges and dog grates and buckets, &c., &c., and the bells were all executed by R. L. Williams, of Chester. Part of the furniture was made by Pearson & Brown, of Weaste, near Manchester; and Waring & Gillow, Ltd., Manchester branch, supplied some of the furniture and practically the whole of the drapery and carpets. In addition to the work generally, the mantels, hinges, fire-dogs, fire-irons, casement fasteners, and the whole of the fitments were designed by the architect and executed under his supervision by the above firms. The general contractors were Groom & Co., Ltd., of Bakewell, Derbyshire.

THE VICTORIA AND ALBERT MUSEUM.

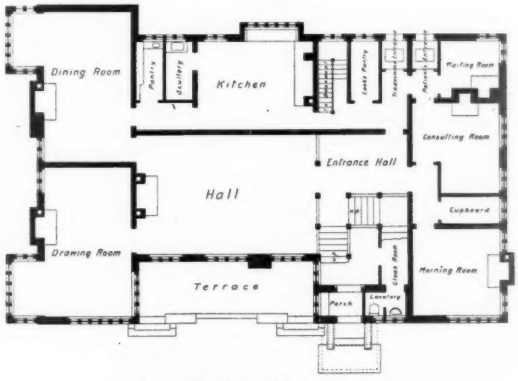
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

THE completing buildings were formally opened by His Majesty the King on June 26. Designs for these buildings were invited in 1891 from six selected architects, and those submitted by Sir Aston Webb, R.A., C.B., were adopted. No decisive step was taken, however, until 1898, when the then Chancellor of the Exchequer, Sir Michael Hicks-Beach (now Lord St. Aldwyn), found himself in possession of a Budget surplus, from which he allotted a sum for the erection of the museum, and Sir Aston Webb was instructed to proceed with the plans. The foundation stone was laid by Queen Victoria on May 17, 1899.

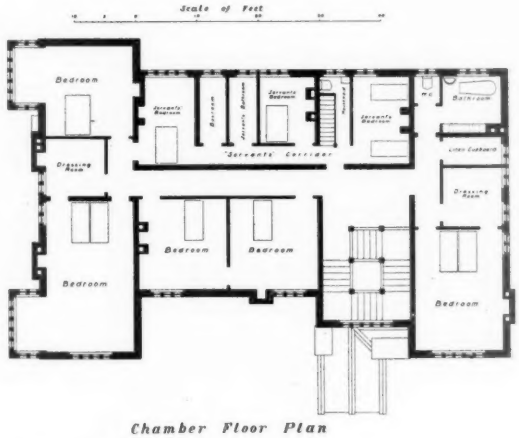
The new buildings have a frontage of 720 ft. to Cromwell Road, and 275 ft. to Exhibition Road. The total length of the perimeter of the site is occupied by three storeys of side-lighted galleries, the fourth-floor galleries being top-lighted, while the remainder of the site is covered with top-lighted courts. The total length of these galleries alone is three-quarters of a mile, and, including the long gallery of two floors that runs down the centre of the building, the galleries in the new buildings are just one mile in length, while the top-lighted courts have a superficial area of 6,500 square yards.

The Cromwell Road front, in the centre of which the main entrance is situated, is in a "flat" curve, following the line of the road, partly in order to secure a right angle at the corner of Exhibition Road, and partly to bring the building into line with the Natural History Museum. Other considerations that influenced the design were the great mass and height of the old Science building, which suggested the domes on the new, in order to preserve the scale.

'Redcourt', Whitfield, Derbyshire.



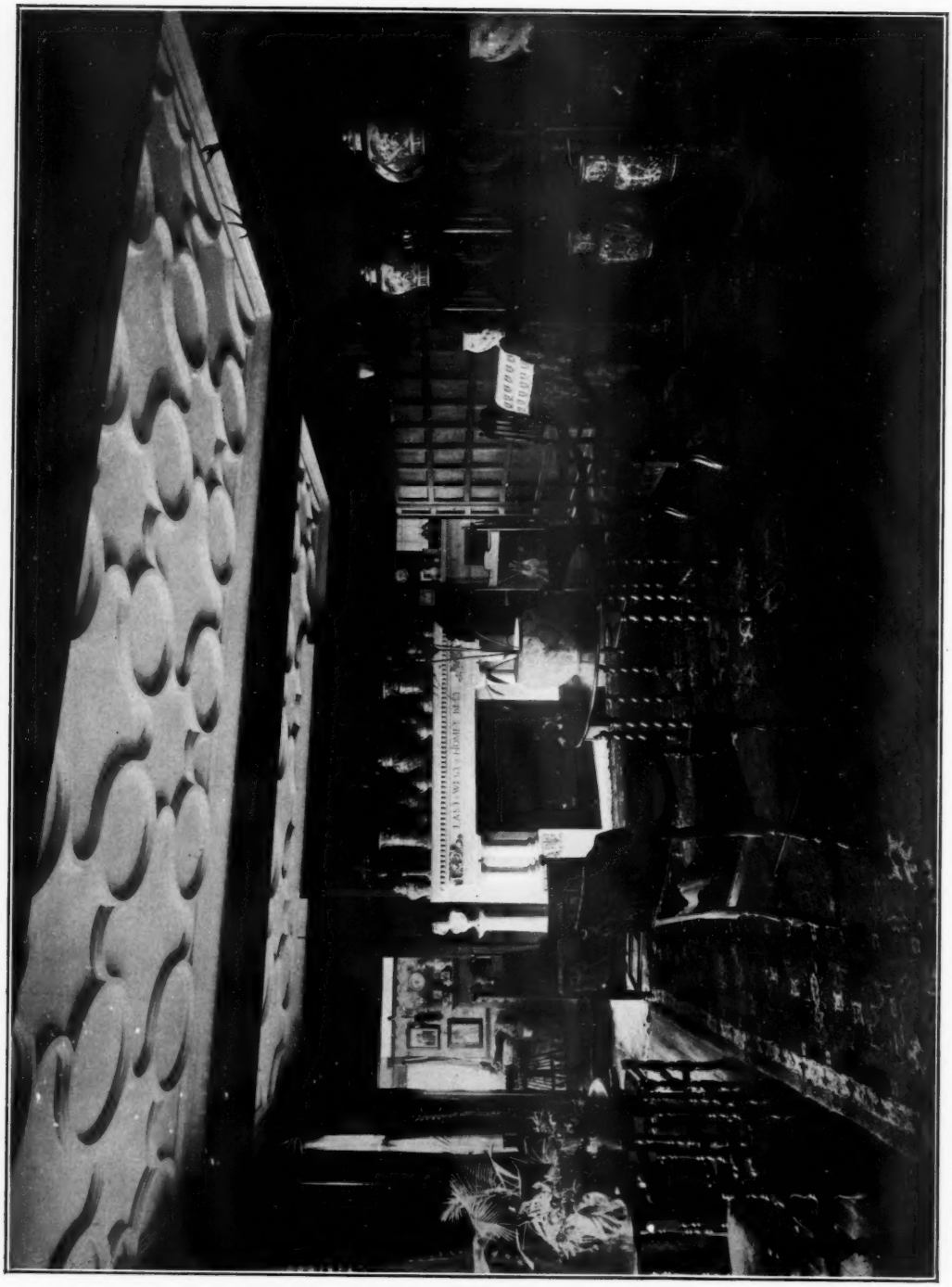
Ground Floor Plan



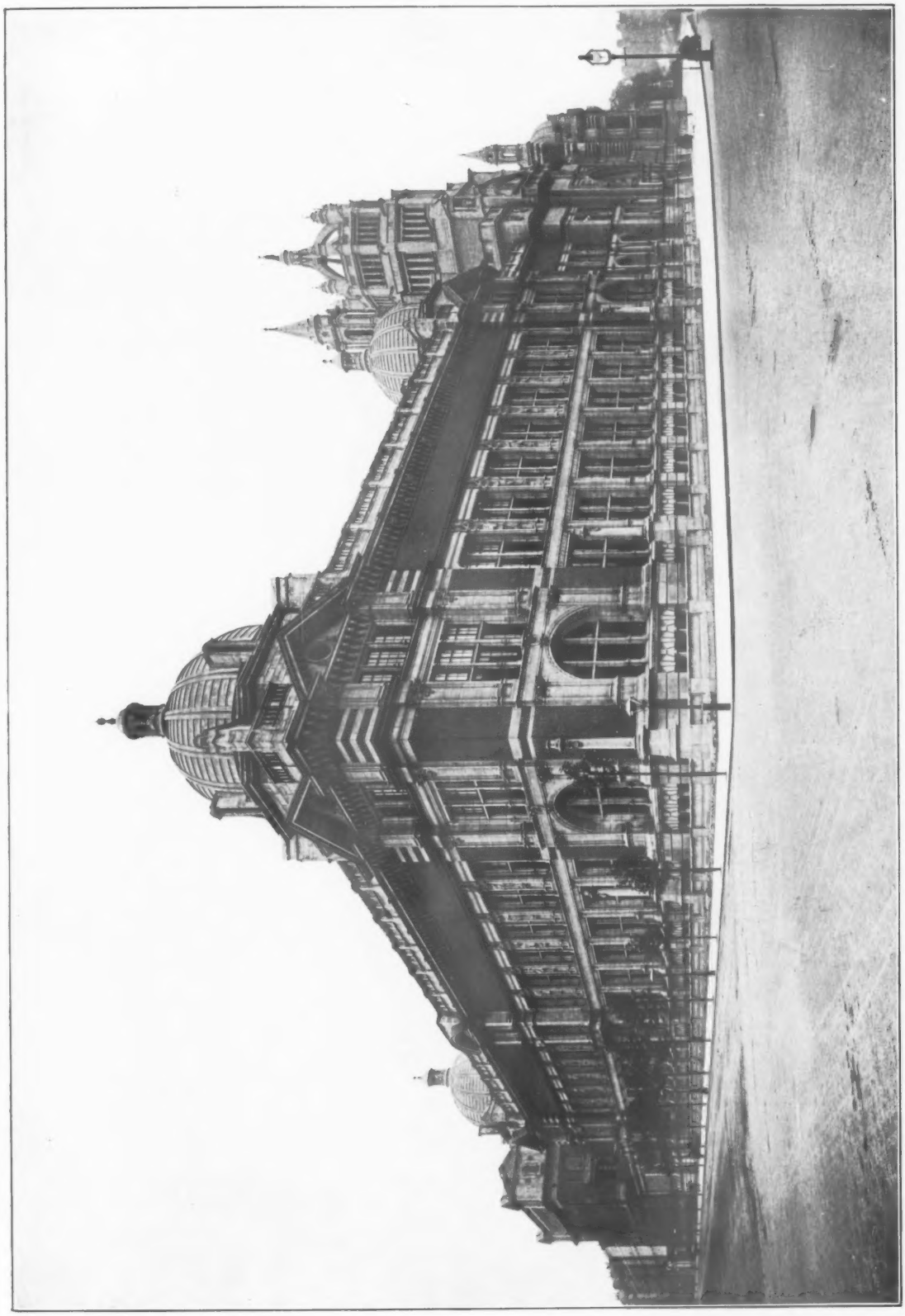
Chamber Floor Plan

PAUL OGDEN, ARCHITECT.

"REDCOURT," WHITFIELD, DERBYSHIRE.
PAUL OGDEN, ARCHITECT.



"REDCOURT," WHITFIELD, DERBYSHIRE: VIEW IN HALL.
PAUL OGDEN, ARCHITECT.



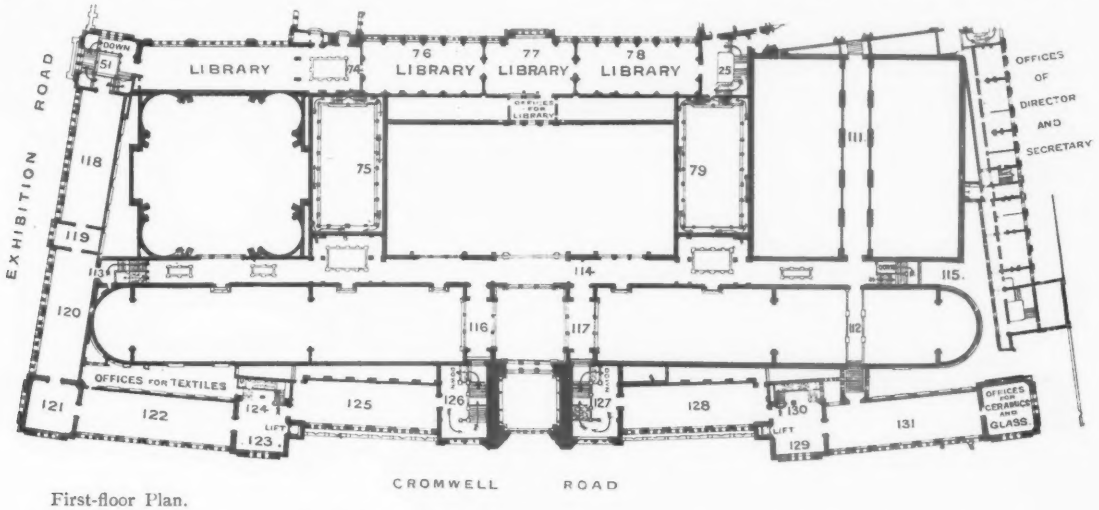
THE VICTORIA AND ALBERT MUSEUM. GENERAL VIEW.
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

THE VICTORIA AND ALBERT MUSEUM. EAST HALL, LOOKING WEST.
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

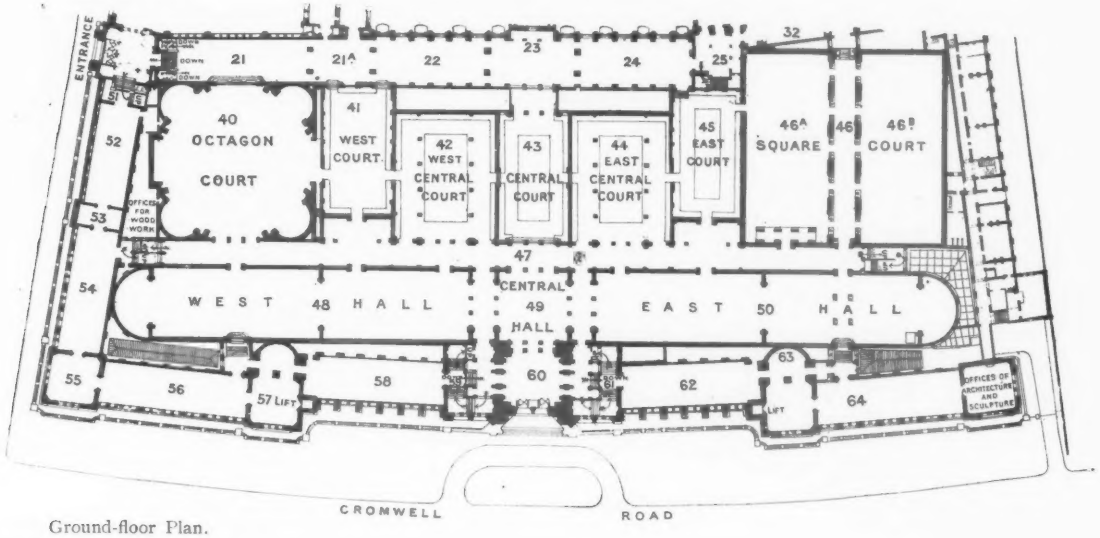
The front is faced with specially selected Portland stone, red brick being freely introduced in frieze and piers in sympathy with the buildings already erected. The sculptured decoration includes statues of thirty-two famous British artists and craftsmen, statues of ten craftsmen being on the Exhibition Road front, while facing Cromwell Road are, in the centre, ten painters; on the west flank, six sculptors, and on the east flank, six architects. The statues of Millais, Watts, Leighton, and Constable were respectively executed by four students of the College of Art under Professor Lanteri; and two each of the other statues were entrusted to the following sculptors: Messrs. Lynn Jenkins, Paul Montford, S. W. Babb, G. Bayes, A. Broadbent, W. S. Frith, J. Gamble, E. G. Gillick, A. H. Hodge, A. B. Pegram, J. W. Rollins, R. Shepherd, A. G. Walker, and O.

Wheatley. The figure of Fame on the lantern, and the two figures in the buttresses below—representing respectively Architecture and Sculpture—are by Professor Lanteri, while Mr. Alfred Drury, A.R.A., executed the statue of Queen Victoria, with her supporters, St. Michael and St. George; the statue of the Prince Consort, under the arch; and the figures of Knowledge and Inspiration, one on each side of the entrance; as well as the carved panels in the archivolt, each panel bearing, in letters of gold, a portion of a quotation from Sir Joshua Reynolds's Discourses: "The excellence of every Art must consist in the complete accomplishment of its purpose." The carved spandrels representing Truth and Beauty are by Sir George Frampton, R.A.; the statues of King Edward VII. and Queen Alexandra by Mr. Goscombe John, R.A.; and the general architectural carving on the front has been done by Mr. W. S. Frith.

In planning the interior the architect had by no means a free hand, as he was under the necessity of "linking up and adapting to the various levels of the old building." The vestibule, 40 ft. by 40 ft., runs up through two floors of the building. The walls are faced with Portland stone, and the ceiling is of teak, carved and inlaid with a holly *motif*. The floor, composed of Sicilian black, Irish red, and Swedish green marbles, was laid by Burke & Co., who also laid the mosaic pavement in the Persian Court and in the libraries, &c. Right and left of the vestibule, the staircases leading to the three floors of the side-lighted galleries are lined with Pavonazza marble in flat slabs. The columns are of Brescia, and the steps of piastraccia. The walls of the galleries and courts, being intended for the exhibition of objects, are of course kept perfectly plain, but "an attempt has been made to prevent weariness to the visitor by avoiding galleries of undue



First-floor Plan.



Ground-floor Plan.

VICTORIA AND ALBERT MUSEUM.
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

length, by providing vistas and glimpses through the building in passing, and by varying the sizes, proportions, and design of the various courts and galleries." The long gallery gives easy access to all the courts on each side, and the courts on the north side of the gallery neither oppose barriers to the visitor, nor confuse him as in a maze.

Flanking the domed central hall are the long eastern and western halls, 50 ft. wide, in which the larger architectural exhibits are being placed. The west and east central courts leading from the central court that forms the main entrance to the older portions of the Museum, have their naves and aisles divided by arcades of Basilican types. The naves have flat ceilings, and the aisles are vaulted. The great octagon court is 110 ft. in diameter, and 65 ft. high in the centre.

ELECTROLIER AT THE VICTORIA AND ALBERT MUSEUM, DESIGNED BY SIR ASTON WEBB, R.A., C.B.

The galleries are 32 ft. wide and 20 ft. high, except in the lower ground floor, where they are 18 ft. high. The windows are carried up close to the ceiling, and on this wall the glass area is equal to the wall area, so that the opposite wall is completely lighted. All the walls are lined with Cranham bricks, so that objects may be easily fixed to them, while all walls towards internal courts are built hollow.

The floors of the galleries are of polished teak, those of the courts being paved with marble mosaic, laid out in squares to facilitate the arrangement of cases and objects. In all there are 7,000 super yards of the mosaic, each yard representing 5,184 cubes. The whole was carried out by the Art Pavements and Decorations, Ltd.

Naturally, the heating and ventilating arrangements have been devised with extreme care. The heat will be derived from six Lancashire boilers, which have been placed in the basement between the north-west entrance and the College of Science. The Atmospheric Steam Heating Co.'s vacuum system of heating has been installed. Ventilation is on a plenum system, by means of which the air can be changed four times an hour, or more frequently if necessary.

The whole of the glazing on the roofs of the various courts, including the domes, was carried out by W. E. Rendle & Co., on their "Invincible" system mounted on moulded teak bars. The domes were glazed without the use of bent glass.

The general contractors for the foundations and up to the ground floor were Leslie & Co., of Kensington; and Holliday and Greenwood, of Brixton, erected the superstructure, executed all the woodwork, including the fine teak ceiling, already mentioned, with its carved and inlaid holly decoration, and all the plumbing work.

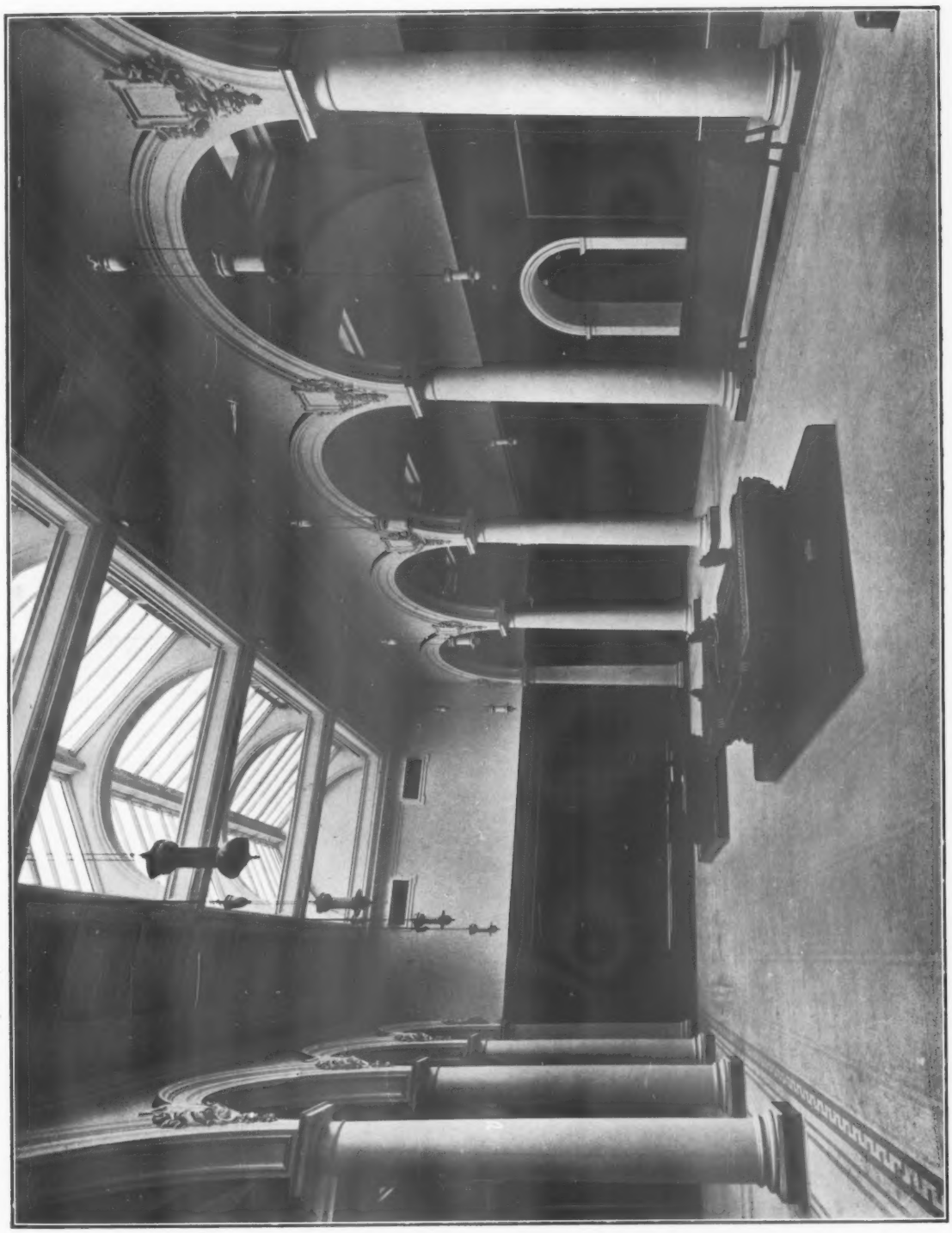
The show-cases, made by Gardiner, Sons & Co., Ltd., have frames of steel, welded by the Oxy-Acetylene process, and covered with polished bronze facings. They are designed to be absolutely dust-proof.

The electrical installation was carried out by T. Clarke & Co., and embodies approximately 5,000 lights, 75 miles of wire, and 95,000 ft. of screw galvanised steel tubing. A feature of the wiring is that any of the cables can be easily withdrawn and new wires substituted without interfering with the decorations or flooring. The electric fittings made by the General Electric Co., comprise 300 six-light coronal electroliers in bronze designed by the architect. An illustration of one of these is given; the lamps are Osram lamps of special shape. In addition there are over 150 brackets of beaten bronze and many single pendants. The narrower galleries are lit by two-light pendants suspended over the cases, and the whole of the fixtures are arranged specially to light up the cases.

Rapidal water paint, in subdued green and ivory tints, has been very largely used for the interior wall-colour effects.

The chief clerk of works was Mr. H. W. Tanner and the general foreman was Mr. J. Farndon.

The following are some of the sub-contractors:—Mack fire-resisting partition slabs, J. A. King &



THE VICTORIA AND ALBERT MUSEUM. WEST CENTRAL COURT.
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

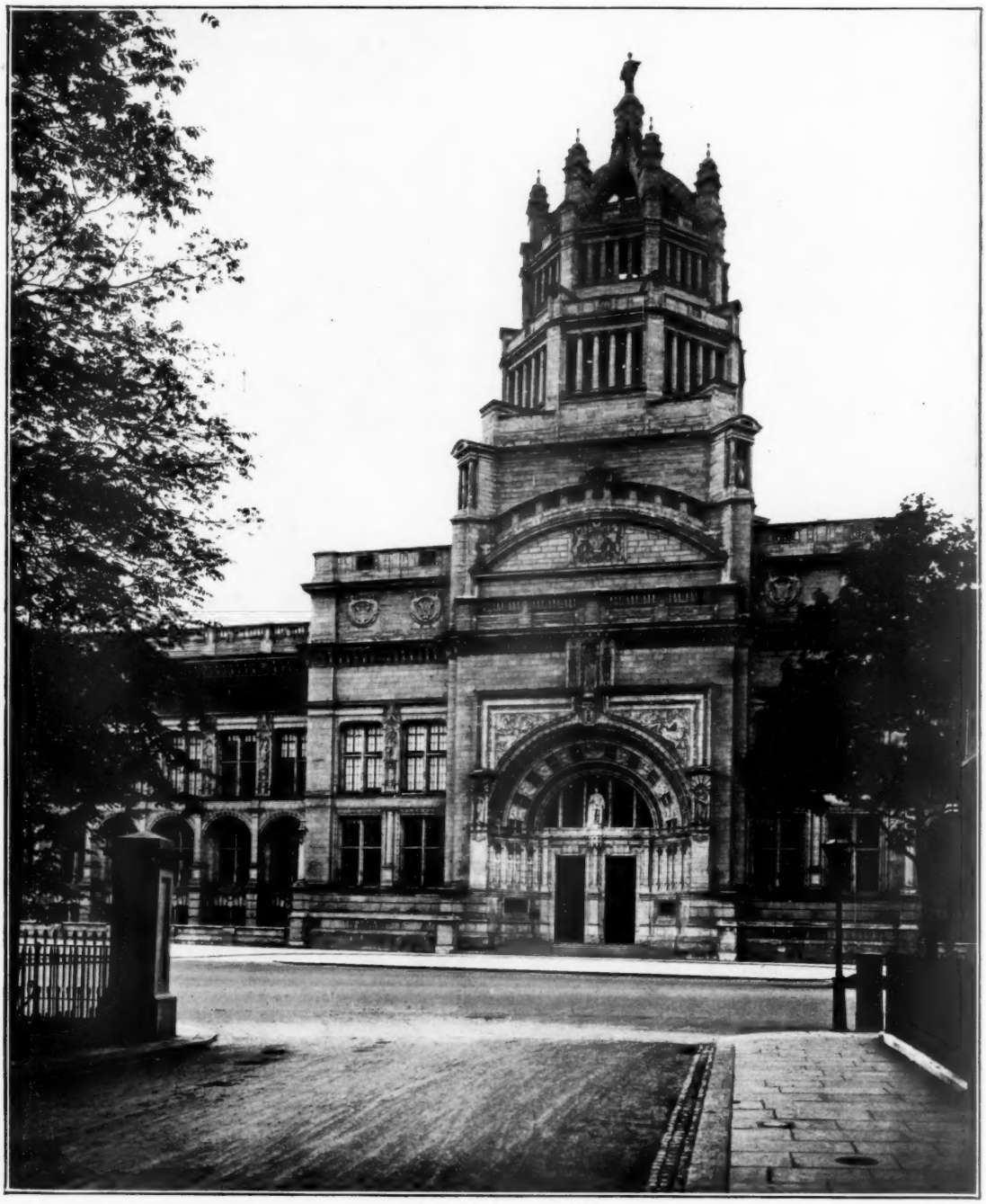
THE VICTORIA AND ALBERT MUSEUM. ENTRANCE HALL, SHOWING STAIRCASE.

SIR ASTON WEBB, R.A., C.B., ARCHITECT.

Co., London; stoneware pipes, &c., Leeds Fireclay Co., and Doulton & Co.; interior brick lining to walls, Sankey & Sons; cement, Associated Portland Cement Co.; electric installation, including the fixing of fittings, arc lamps, &c., T. Clarke & Co.; electric fittings, General Electric Co., Ltd., and Strode & Co.; ornamental metalwork and casements, Hart, Son, Peard & Co.; iron work, St. Pancras Ironwork Co.; ironmongery and sliding doors, Chas. Smith, Sons & Co.; drainage, Burn Brothers; rain-water pipes, &c., W. Macfarlane & Co.; armoured fireproof doors, Mather and Platt; hydrants, Simpson & Co.; suspended ceilings and steelwork encasing, A. & J. Main, Ltd.; ornamental plasterwork, Bromsgrove Guild of Applied Arts, G. P. Bankart, J. Bickley; paint, R. Gay & Co., Ltd.; water paint, Rapidal Paint Co.; granite entrance

THE VICTORIA AND ALBERT MUSEUM. GALLERY ON FIRST FLOOR (114 ON PLAN).
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

steps, Fenning & Co.; slates, Old Delabole Slate Co.; roof glazing, W. E. Rendle & Co.; general glazing, Pilkington Brothers; electric lifts, General Electric Co., R. Waygood & Co.; fireplaces, Shuffrey & Co.; service lifts, George Johnson; revolving doors, Van Kannell Revolving Door Co.; outside paving, Hard York Non-slip Paving Co.; marble, Farmer and Brindley, Walton, Goody & Cripps, Burke & Co.; show-cases, Gardiner, Sons & Co.; mosaic work, The Art Pavements and Decorations, Ltd.; the atmospheric steam heating system, by Jeffrey & Co.; expanded metal lathing for plasterwork, and three-inch mesh lathing for concrete reinforcement, Expanded Metal Co.; "Silex" stone for staircases, Brookes, Ltd.



THE VICTORIA AND ALBERT MUSEUM. MAIN ENTRANCE.
SIR ASTON WEBB, R.A., C.B., ARCHITECT.

HAMMERSMITH PUBLIC BATHS.

J. Ernest Franck, Architect.

THE Public Baths and Washhouses built for the Borough Council of Hammersmith occupy a site that is of irregular shape, though of ample area. While the total depth of the site is about 520 ft., the frontage on the east side is only 70 ft., whereas the width on the west is nearly twice as great; and the difficulties of planning were increased by the necessity for observing certain prescriptive requirements with respect to rights of light, as well as several conditions of an agreement between the London County Council and the Borough Council.

The accommodation comprises: First-class swimming pond, 105 ft. by 34 ft.; second-class swimming pond, 100 ft. by 30 ft.; sixty-three slipper and lassar baths; public washhouse fitted with thirty washing stalls, thirty drying horses, and three hydro extractors, ironing room, establishment laundry, boiler-house with coal bunkers, engine room, engineers' workshop and store, three ticket offices, male and female staff mess rooms, club and waiting rooms, superintendent's residence, and engineer's residence.

The bold design of the main arched-roof principals over the first-class pond was rendered possible by the adoption of reinforced concrete. The use of steel stanchions would have necessitated projections from the wall; but with the adoption of reinforced concrete the stanchions or continuation of the main ribs were divided at the level of the roofs of the corridors, were carried across them in an arched formation, were continued to the ground-floor level on each side of the corridor, and joined again beneath the ground-floor, the lower portions of these stanchions thus becoming box-shaped. The architect considered that even if the roof trusses had been carried out in steel and covered with 2 in. of some non-conducting external coating, such a structure would be less fire-resisting than ferro-concrete, and the ribs showing in the ceiling of this bath are true structurally. Moreover, steel roof trusses would have required periodical painting; but with reinforced concrete the necessity for maintenance hardly arises.

The frontages are faced with red brick with Portland stone dressings. The roof is covered with Precelly slating. The inner wall-faces of the swimming-bath, the public washhouse, and the establishment laundry, are of glazed brickwork, while the cornices, architraves, and dressings to the windows of the first-class bath are of Carrara Ware. The private baths, corridors, and other rooms are finished with dadoes in glazed bricks to various heights, the upper portions of the walls being finished in sirapite. The front portion of the entrance corridors in Lime Grove, and the entertainment entrance hall and corridor club-room No. 1, have dadoes carried out in plain coloured tiling from special designs by the architect. The gangways of the swimming-baths are covered with non-slipping rubber tiles.

In the washouses the sides and backs of the partitions to each stall are constructed for an exhaust vapour pipe to be carried the whole length of each range of stalls into extract ducts formed in the wall, the floor of the washhouse being formed to give a fall to this pipe for draining any condensation water. A separate connection is taken from each boiler into the main exhaust pipe, and by this means the washhouse is kept entirely free from steam.

The general contractors were Dearing & Sons, of Clarence Works, Halliford Street, N. The following are some of the sub-contractors: The Expanded Metal Co., Ltd., of Westminster, were the sub-contractors for the whole of the reinforced concrete construction, except the concrete foundation rafts under the chimney and other portions of the building, which rafts were reinforced with expanded steel, and constructed by the general contractors. The reinforced concrete work comprised the two swimming ponds, an elevated storage tank of 22,850 gallons capacity; nine arched roof principals (50 ft. clear span), cantilever gallery round the pond (without any column supports), and the floors and flat roofs throughout the building. The reinforcement throughout was expanded steel of various strengths, and Kahn trussed bars supplied by the Trussed Concrete Steel Co., of London. The "Ferro-crete" brand of Portland cement, supplied by the Associated Portland Cement Manufacturers, Ltd., was used throughout. The whole of the bath fittings were supplied by Doulton & Co., of Lambeth. The electric light fittings were supplied by F. & C. Osler, and Fittings, Ltd. Glazed bricks, lining to swimming ponds, and porcelain baths, The Farnley Iron Co.; T.L.B. facing bricks to front, T. Lawrence & Sons, Bracknell; tiling to entrance corridors, Craven Dunnill & Co.; tiling to bath gangways, Pilkington Tile & Pottery Co.; plasterwork to barrel ceiling over main baths, F. de Jong & Co., Camden Town; fire-grates and mantels, Bratt Colbran & Co.; lightning conductors, Joseph Lewis; drainage fittings, John Jones (Chelsea), Ltd. The whole of the general engineering scheme, and the fittings to the public washhouse, establishment laundry, ironing room, etc., were in the hands of J. & D. Tullis, Ltd.

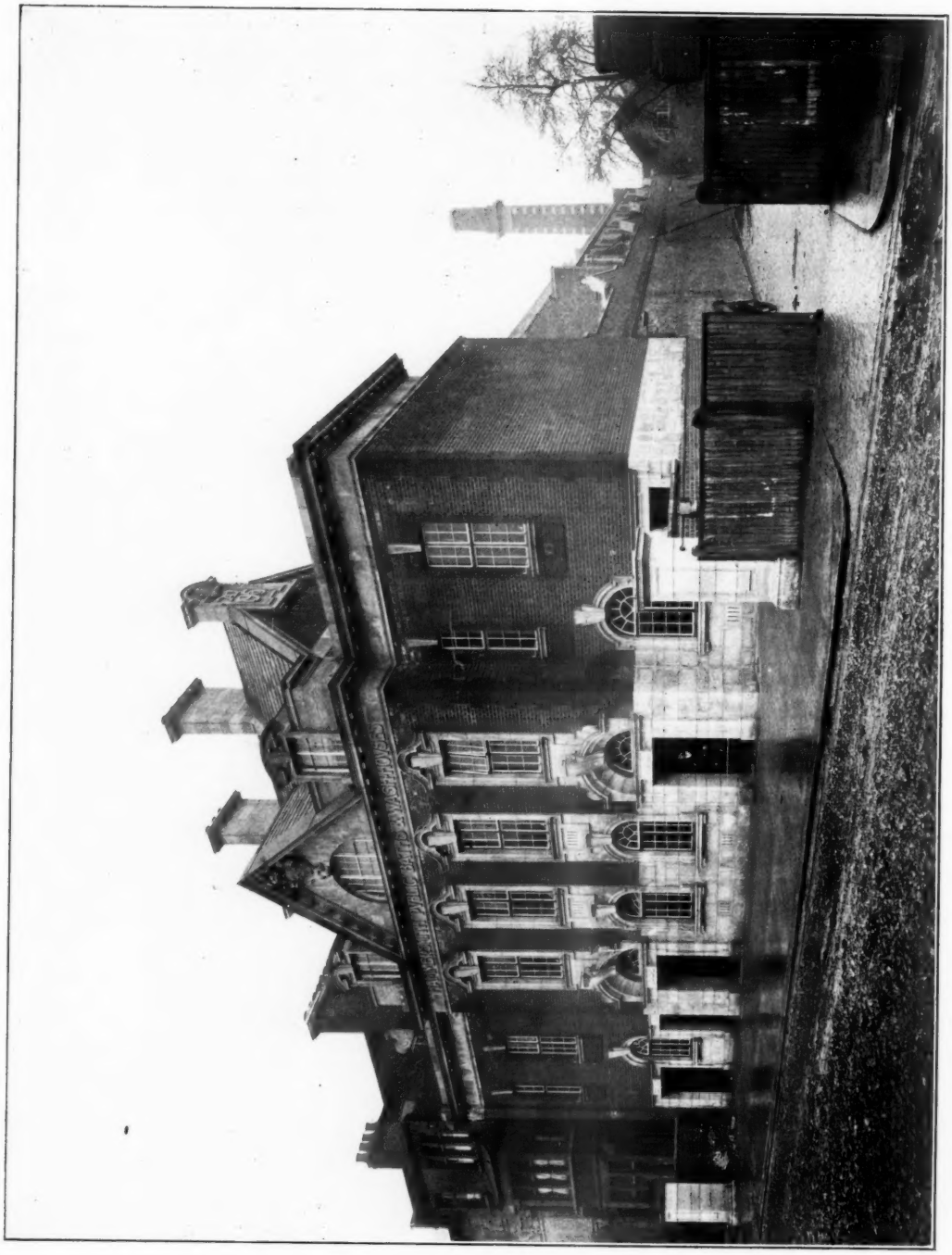


Photo: Campbell Gray.

THE HAMMERSMITH PUBLIC BATHS. EXTERIOR.

J. ERNEST FRANCE, ARCHITECT.

Photo: Campbell Gray.

THE HAMMERSMITH PUBLIC BATHS. GENERAL VIEW OF LARGE SWIMMING POND.

J. ERNEST FRANCK, ARCHITECT.

The Committee for the Survey of the Memorials of Greater London.

ONE of the most useful handmaids to all scientific research, next in importance to the indispensable art of printing, is that arrangement and classification of writings which is known as bibliography. Of recent institution it has yet had a phenomenal growth, and has become a minor science in itself with its own special laws and conditions. No sure advance can be made in any department of knowledge unless the great mass of information which has already been collected in printed volumes is made easily available for reference, and although a universal library, arranged in the most perfect manner, will not of itself produce genius or even intelligence in the student, yet the greatest minds need this aid, in order to use profitably the complicated literature of the present day.

One of the newest sciences, the science—or should we say the philosophy—of history has the greatest need of the help of bibliography, and it is the one that is perhaps the most ill supplied. It is true that there are immense bibliographies of special periods and special personalities, and it is no doubt because of its vast range that historical work still requires so much from the compiler of indexes and calendars. But perhaps nowhere in the whole field of historical research is this lack so much felt as in the department that deals with topography. From their very nature topographical writings are spasmodic and ill-arranged. The associations which linger about places and buildings, from the people and the events that have been known or seen within them, have always had sufficient interest to find their chroniclers, but these local historians have hidden their information in obscure books, or have dispersed their observations among volumes dealing with widely different subjects. Yet the facts which have been thus relegated to an undeserved obscurity are often such as serve to determine important points in general and national history.

The topographical history of London has been written in a thousand different ways. From the time of Stow, unnumbered citizens, who have felt an interest in their great city exceeding that of the passing moment, have added to its records. And beside this, maps, plans, engravings, and—in the past few years—photographs have been made illustrating the changes that are always taking place. Some efforts have been made, too, towards collecting these things. We have at the British Museum the Crace collection and the numerous drawings in the King's Library. At the Guildhall is the wonderful grangerised edition of Lysons' *Environs*, full of original information. Among the contents of the Soane Museum is a large collection of topographical drawings, and the "Fauntleroy" Pennant, another grangerised edition. And at the libraries of the Society of Antiquaries, the Royal Institute of British Architects, and those of such local bodies as the Bishopsgate Institute and the Borough of Chelsea, there is a great store of these valuable illustrations. And in addition to these there are many private collections of first-rate if not of paramount importance, such as that left by the late Mr. Gardner, which even rivals the Crace.

This work of illustration and record, of which the past results are in so many repositories of learning, is still being done by many different organisations, and the need for some attempt at bringing it all together for practical use is becoming every day more pressing. It is a question that our Survey Committee is anxiously considering, and in our notes of next month we may perhaps discuss some possible method of solution. Our mostdifficult task is to convince those who are sceptical of the value of this work. It is often said that the current fashion of admiring the "antique," and of treasuring the legacies from past ages—whether of art or of mere objects of utility—will die away and give place to a keener interest in the present. But there is something of more permanent and real significance underlying this homage to the past. History is the only teacher of the world, for it is experience writ large, and generalised into great and lasting principles. And as we have said before in these notes, there can never be any true conception of the present without a proper consciousness of what the past can teach us, when it is intelligently and sympathetically studied.

WALTER H. GODFREY.

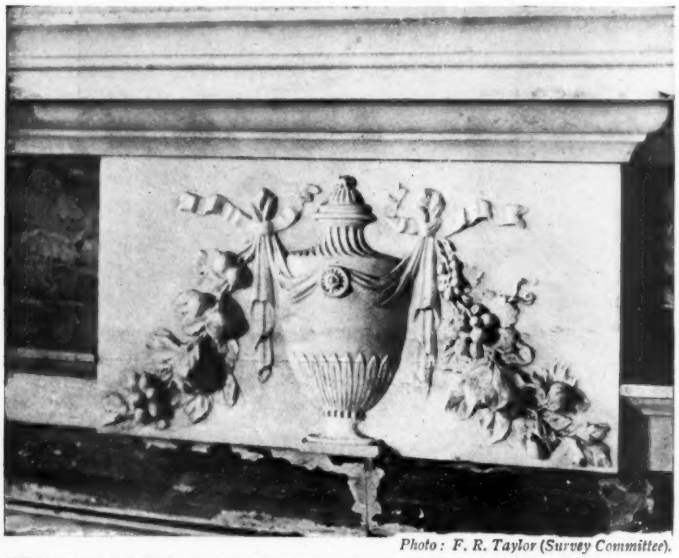


Photo: F. R. Taylor (Survey Committee).

DETAIL OF FRIEZE, CHIMNEYPIECE: BRENT HOUSE, BRENTFORD (RECENTLY DEMOLISHED).